

Regional Land Use Plans/Studies

Under the Springfield Alternative, there would be a range of impacts to land use plans as compared to the No-action Alternative.

Fairfax County Comprehensive Plan: Franconia – Springfield Area

Springfield Alternative would closely align with the Fairfax County Comprehensive Plan: Franconia-Springfield Area’s goal of encouraging revitalization through enhancing the economic competitiveness of local businesses, because a major employment center such as the consolidated FBI HQ would attract businesses in the area. The recommended traffic mitigation measures would foster connectivity through street design, including the upgrading and addition of signalized intersections. These improvements would contribute to the Fairfax County Comprehensive Plan’s goals for land use and roadways in Franconia-Springfield. As a result there would be direct long-term, beneficial impacts to land use.

However, the Springfield Alternative would not align with some aspects of the Fairfax County Comprehensive Plan. The plan recommends future land use in Franconia-Springfield to consist of high-density and mixed-use developments; with usable way-finding systems and viable connections throughout the area; and be composed of a mixture of uses beyond the normal working hours. The Springfield Alternative would not align with these principles because the project would provide a single purpose use, restrict public access and limit connectivity, and discourage connections throughout the area. In addition, the stated goals of the Fairfax County Comprehensive Plan for land use at the Springfield site indicate that any development on the site should result in public benefits such as improvements to circulation, parking, landscaping, and site or building design. Although the Springfield Alternative would result in upgraded parking and landscaping, these benefits would be exclusive to the employees of FBI HQ and would not be beneficial to the surrounding community. This failure to align with the Fairfax County Comprehensive Plan would result in direct, long-term, adverse impacts to land use.

Springfield Connectivity Study

The Springfield Connectivity Study includes a statement that the land use of the Springfield site should be composed of 90 percent office space. While the consolidated FBI HQ would be primarily office space, it would contain a mix of other uses, including information technology, retail, and community uses. Although the projected use of the consolidated FBI HQ differs slightly from this study, they would be similar enough that their alignment would result in direct, long-term, beneficial impacts to land use.

Franconia Springfield Station Vision Plan

The Springfield Alternative would align with the Franconia-Springfield Station Vision Plan, because the increased influx of personnel at FBI HQ would provide increased use of the Franconia-Springfield Metro Station, and spur development on surrounding land. As a result there would be direct, long-term, beneficial impacts.

Comprehensive Plan for the National Capital Region

The Springfield Alternative would fulfill many of the objectives of Federal Elements of the Comprehensive Plan for the NCR. The Springfield Alternative would enhance operational efficiencies and contribute to developing the economy in Springfield area. It would also utilize available federally owned land, and be located in proximity to multi-modal transportation options. As a result of the alignment with most elements of the Federal Elements, there would be direct, long-term, beneficial impacts to land use under the Springfield Alternative.

7.2.5 Visual Resources

The following sections describe the environmental consequences for visual resources under both the No-action Alternative at Springfield and the Springfield Alternative.

VISUAL RESOURCES ASSESSMENT OF SIGNIFICANCE

Impacts to visual resources would not be significant, as defined in section 3.6.3.

7.2.5.1 No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to visual resources because the continued operation of the site as a GSA warehouse complex would not alter the aesthetics or the existing views of the site.

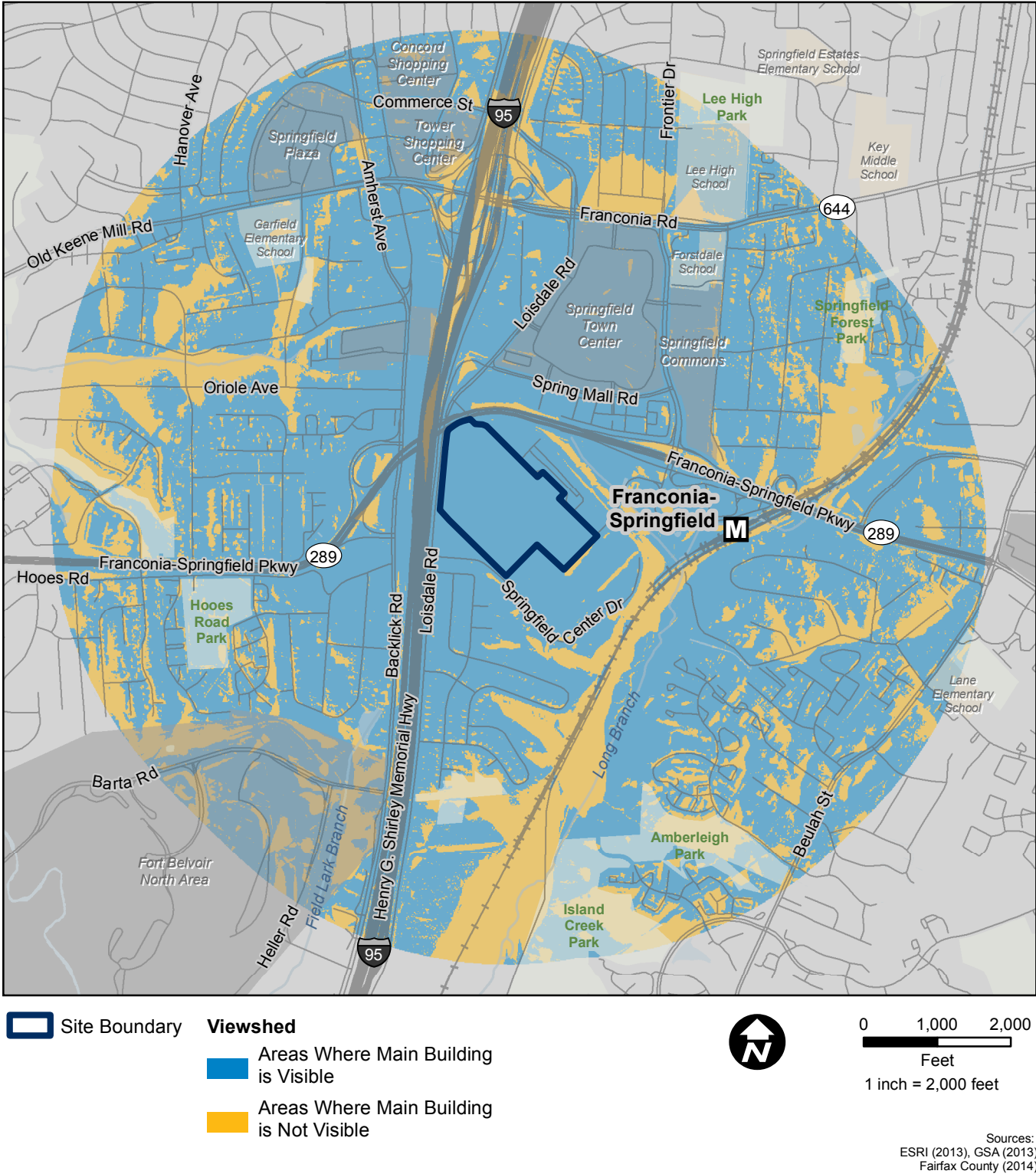
7.2.5.2 Springfield Alternative

Under the Springfield Alternative, there would be direct, long-term, adverse impacts to visual resources. Based on the conceptual site plan and preliminary estimates, the Main Building, which would be constructed within the 9.3 acre Main Building Developable Area, is assumed to have a maximum building height of approximately 12 stories in the Draft EIS. Parking structures at the Springfield site are assumed to not exceed 7 stories, while the Central Utility Plant (CUP), remote delivery facility (RDF), gatehouses, and Visitor Center (VC) would not exceed 2 stories. In order to envisage the visibility of the Main Building to the surrounding area, a viewshed analysis for the Springfield site was completed for the Main Building Developable Area in ArcMap. The analysis applied the maximum Main Building height (180 feet) to the entirety of the Main Building Developable Area, and calculated views based on the existing ground topography and the obstruction caused by trees in the viewshed. Considering the elevation of the building footprint and surrounding area, the Springfield Alternative would be visible from most locations within 0.25 mile. It would be highly visible areas adjacent to

SPRINGFIELD VISUAL RESOURCES ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts.
- Springfield Alternative: Direct, long-term, adverse impacts.

Figure 7-33: Springfield Viewshed Analysis



the site, including the Franconia Springfield Parkway, Loisdale Estates, the Springfield Crossing Apartment Complex, and the Franconia-Springfield Metro Station. Views in other areas of the viewshed would be buffered by intervening buildings and tree cover. The results of the viewshed analysis for the Springfield site are shown in figure 7-33.

The development pattern in the study area consists of low to mid-rise buildings. With a maximum height of 12 stories, the Main Building would be noticeably more visible than the surrounding area but would still blend in with the skyline. Adjacent to the Springfield site, across Metropolitan Drive, is a 5-story Extended Stay America Springfield hotel and the Springfield Crossing Apartment Complex. Most of these facilities are 4 stories tall; however, the building on the southeast corner of the apartment complex reaches 7 stories. Further to the east is the Franconia Springfield Metro Station with a 6-story high parking garage. South of the site is the 3-story high Northern Virginia Community College – Medical Campus and its associated 5-story parking garage. Single-story family homes make up a housing development southeast of the site. Across the Franconia-Springfield Parkway is Springfield Town Center with buildings ranging from 1 to 6 stories. Franconia Springfield Parkway is elevated adjacent to the site where it crosses I-95. There are other notable elevated roadways in the study area, including the ramps associated with the I-95/I-395/I-495/Old Keene Mill Road ramps, and those roads that cross over I-95, such as Commerce Street and Old Keene Mill Road.

The area surrounding the Springfield site includes various suburban land uses such as commercial, residential, office, industrial, transportation-related and institutional/educational. It is an highly developed area, so the Springfield Alternative would not be incongruous with the surrounding area, and these changes in the visual character of the Springfield site are envisioned for the site by Fairfax County as outlined in the Fairfax County Comprehensive Plan, and other local and regional planning initiatives. The aesthetic quality of the site itself would be improved under the Springfield Alternative by the addition of trees and landscaped elements within a master planned site.

Shadow Analysis

In order to complement the visual analysis, a shadow analysis was performed to estimate how shadows cast by the Main Building may impact the surrounding area, as described in section 3.6. Using ArcScene, a sun-shadow analysis model was created to determine shadows that would be cast by the Main Building at the Springfield site. Shadows are more pronounced in the winter than in the summer. During winter mornings, shadows would extend to the west/northwest of the Main Building and would potentially cover a small portion of Loisdale Road; however, they would not be expected to impact any surrounding development. During winter evenings, long shadows would extend to the northeast of the building and cover a portion of the Springfield Crossing Apartment Complex. The results of the shadow analysis for the Springfield site are shown in figure 7-34.

The sun-shadow analysis was completed for the Main Building Developable Area in ArcScene at 8:00 AM and 4:00 PM during the summer solstice (June 20) and winter solstice (December 21) to capture shadow extremes within a year. At 8:00 AM during the summer solstice, minimal shadows would be present to the west/southwest of the building(s). At 4:00 PM during the summer solstice, slight shadows would be present to the north/northeast of the building(s). Summer solstice represents the impacts of the least case scenario. At 8:00 AM during the winter solstice, long shadows may extend northwest of the building(s). If a maximum building height of 12 stories is used, the winter shadow may potentially interfere with I-95. At 4:00 PM during the winter solstice, long shadows may extend to the northeast of the building(s) and potentially cover the hotel and housing units. Winter solstice represents the impacts associated with the greatest case scenario. As a result, direct, long-term, adverse impacts related to shadow are expected at the Springfield site.

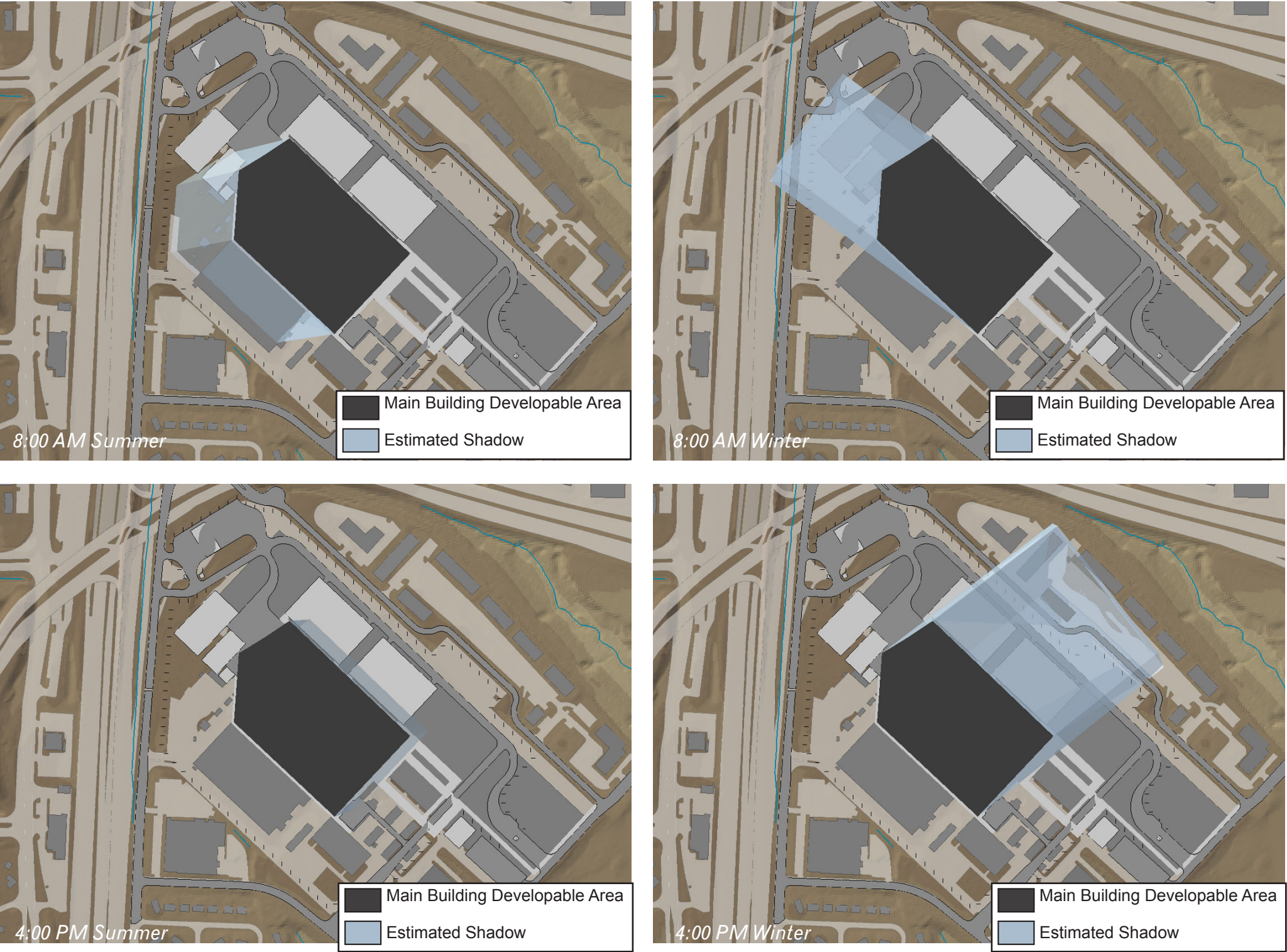
Lighting Impacts

Due to security requirements, the consolidated FBI HQ would be a well-lit facility, with a minimum of 1 foot candle across the entire site during non-daylight hours. Full cut-offs would be used to minimize light pollution to the surrounding area. Illumination from the consolidated FBI HQ would have an additive effect with the lighting along Franconia Springfield Parkway and Loisdale Road. It is unlikely that this lighting would be noticeable within adjacent neighborhoods. Therefore lighting would cause no additional adverse impacts to visual resources under the Springfield Alternative.

Transportation Mitigations

There would be no measurable impacts to visual resources associated with the recommended traffic mitigation measures within the transportation study area, as shown in figure 7-48. All mitigation measures requiring construction would be along the existing roadways, with minimal tree clearing and lighting continuing to be confined to the existing transportation corridor.

Figure 7-34: Springfield Shadow Analysis



FULL CUT-OFF

A light system that prevents light from being cast upward or outward and therefore contributing to light pollution. No light is emitted directly from the luminaire into the sky.

**SPRINGFIELD ARCHAEOLOGICAL
RESOURCES ENVIRONMENTAL
CONSEQUENCES SUMMARY**

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

**SPRINGFIELD HISTORIC
RESOURCES ENVIRONMENTAL
CONSEQUENCES SUMMARY**

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

7.2.6 Cultural Resources

The following sections describe the environmental consequences for cultural resources under both the No-action Alternative at Springfield and the Springfield Alternative.

**CULTURAL RESOURCES
ASSESSMENT OF SIGNIFICANCE**

Impacts to cultural resources would not be significant, as defined in section 3.7.3.

7.2.6.1 Archaeological Resources

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to archaeological resources because the continued operation of the site as a GSA warehouse complex would not disturb the ground surface of the site.

Springfield Alternative

At the Springfield site, there would no measurable impacts to archaeological resources, because there is a low potential for intact resources to exist on the site due to previous disturbance.

Should there be an unanticipated discovery of archaeological resources during construction, GSA would continue Section 106 consultation with the MD SHPO and other parties through the standard review process under 36 Code of Federal Regulations (CFR) § 800. Through this ongoing process, any impacts to archaeological resources would be avoided or mitigated to the extent that they would not be measurable. This stipulation would be included in the Section 106 Programmatic Agreement for the project.

7.2.6.2 Historic Resources

No-action Alternative

Under the No-action Alternative at the Springfield site, the continued operation of the site as a GSA warehouse complex would have no measurable impacts to historic resources because no historic resources are located within the boundaries of the APE.

Springfield Alternative

As noted in section 3.7, GSA initiated consultation under Section 106 of the NHPA with the VA SHPO on May 14, 2015. On June 12, 2015, the VA SHPO commented on the potential for historic resources in the APE, noting that several post-1950 subdivisions fall within the APE, and requesting additional architectural survey should the Springfield site be chosen as the Preferred Alternative. In 2007, the VA SHPO concurred with GSA's finding that the existing warehouse facilities on the site were not eligible for listing in the NRHP (Landwermyer 2007).

Architectural resources 50 years of age or older within the APE are unlikely to be eligible for listing on the NRHP as historic districts or as individual resources, pending further architectural surveys. A consolidated FBI HQ would be visible from Loisdale Estates, Beverly Forest, and Springvale. Vegetative buffers and noise walls associated with roadways throughout the study area would also limit views toward the Springfield site.

Although the Main Building would be taller than surrounding buildings, the overall development of the Springfield site would be in keeping with the character of the area. It is anticipated that the Springfield Alternative would not visually impact any potential historic resource to the extent that it would diminish its integrity. The eligibility of these resources for listing in the NRHP is dependent on further agency consultation. In addition, any adverse impacts to historic resources in the APE would be mitigated by Section 106 consultation under the Programmatic Agreement. Therefore, there would be no measurable impacts to historic resources.

**7.2.7 Socioeconomic and
Environmental Justice**

Impacts related to changes in population and demographics as a result of consolidating FBI HQ at the Springfield site are considered in the context of the local economy of Fairfax County, the Washington, D.C., MSA, and the Commonwealth of Virginia. Impacts to tax revenues, population, housing, schools, and community facilities and services of Fairfax County, the Washington, D.C., MSA and the Commonwealth of Virginia, are all described qualitatively. Benchmarks for some impacts, such as impacts to construction employment, have been created by identifying the greatest annual change over a recent historical period to create a quantitative threshold for the magnitude of impacts on each resource.

**SOCIOECONOMICS AND
ENVIRONMENTAL JUSTICE
ASSESSMENT OF SIGNIFICANCE**

Impacts to socioeconomics and environmental justice would not be significant, as defined in section 3.8.3.

7.2.7.1 Population and Housing

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to population and housing because the continued operation of the site as a GSA warehouse complex would not alter the current population and housing patterns in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

Population

Similar to the Greenbelt and Landover alternatives, the Springfield Alternative would result in the potential relocation of a portion of FBI HQ’s employed workforce. It is possible that some, but not all, of these employees and their families would relocate their primary residences to be closer to the Springfield site while others would alter their commuting patterns to the consolidated FBI HQ at Springfield. It is assumed that most of the current FBI HQ employees reside within the Washington, D.C., MSA. As any movement of their primary residences or commutes would likely occur within the Washington, D.C., MSA there would be no measurable impact to population as a result of FBI HQ employees relocating their primary residence or changing commute patterns under this alternative. Some FBI HQ employees may choose to relocate to Fairfax County from outside of Fairfax County in order to be closer to the consolidated FBI HQ under this alternative. However, the amount of employees that would relocate to the county from outside the county is unknown; therefore, the population impacts of these relocations on Fairfax County cannot be assessed. Additionally, some current FBI HQ employees may choose to quit the FBI as a result of this alternative and new employees may be hired that live closer to the consolidated FBI HQ.

Housing

It is assumed that most of the current FBI HQ employees reside within the Washington, D.C., MSA. If these employees relocated their primary residences as a result of this alternative it is likely that they would relocate to another area of the Washington, D.C., MSA. Therefore, there would be no net impact to housing with the Washington, D.C., MSA which would result in no measurable impact to housing under this alternative. Some current FBI HQ employees may relocate to Fairfax County from outside of Fairfax County. However, the total amount of employees that would relocate to the County from outside the County is unknown; therefore, the housing impacts of these relocations on Fairfax County cannot be assessed due to insufficient information at this time.

7.2.7.2 Employment and Income

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to employment and income because the continued operation of the site as a GSA warehouse complex would not alter the current employment or income levels in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

Construction and Operations-related Spending

Impacts resulting from construction and operations-related spending in Fairfax County and the Washington, D.C., MSA would be similar to those described for the Greenbelt Alternative in section 5.2.7.2. However instead of Prince George’s County, Maryland, the impacts would occur in Fairfax County, Virginia. Therefore, there would be direct, short-term, beneficial impacts to Fairfax County and the Washington, D.C., MSA as a result of construction-related spending and long-term, beneficial impacts to Fairfax County and the Washington, D.C., MSA as a result of operations-related spending.

Construction Employment

Similar to the Landover Alternative, it is expected that there would be approximately 2.4 million gross square feet (gsf) of construction under this alternative. This level of construction would require 6,720 full-time equivalent construction workers for a one-year period, resulting in approximately \$315 million in construction wages that would result directly from project spending. However, it is not likely that all 6,720 construction workers would be employed for only one year and, instead, the project would occur over multiple years which would reduce the impact to the local construction industry.

Similar to the findings under RFDS 1 and the alternatives at the Greenbelt and Landover sites, most of the construction workforce is expected to come from within the Washington, D.C., MSA. However, due to the specialization requirements of some construction jobs and the high number of future construction projects, it is possible that some construction workers could relocate to the Washington, D.C., MSA in order to construct the facilities under this alternative during the construction period. Any temporary relocation of construction workers to the Washington, D.C., MSA would have short-term, beneficial impacts to the local lodging, food and beverage, and retail sectors when these construction workers spend their income in the Washington, D.C., MSA.

Operations Employment

Because current FBI HQ employees work within the Washington, D.C., MSA, there would be no new impacts to the Washington, D.C., MSA as a result of the employment of operations-related employees. However, there may be some long-term, beneficial impacts to sales, income, and employment in Fairfax County as a result of commuting employees who spend their income locally during the workday and those employees that choose to relocate their primary residence to Fairfax County as a result of the project.

SPRINGFIELD POPULATION & HOUSING ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts to population and housing in Fairfax County or the Washington, D.C., MSA.
- Springfield Alternative: No measurable impacts to population or housing in the Washington, D.C., MSA. Impacts to population and housing in Fairfax County cannot be assessed due to insufficient information at this time.

SPRINGFIELD EMPLOYMENT & INCOME ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts.
- Springfield Alternative: Indirect, short- and long-term, beneficial impacts.

SPRINGFIELD TAXES
ENVIRONMENTAL CONSEQUENCES
SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Indirect, short- and long-term, beneficial impacts to sales and income tax revenues. No measurable impacts to property tax revenues.

SPRINGFIELD SCHOOLS
AND COMMUNITY SERVICES
ENVIRONMENTAL CONSEQUENCES
SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Insufficient information available to determine impacts to community services. No measurable short-term impacts to schools. Insufficient information available to determine long-term impacts to schools.

7.2.7.3 Taxes

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no new measurable impacts to sales, income, or property taxes because the continued operation of the site as a GSA warehouse complex would not alter the current condition of the property or result in a change in sales or income in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

The Springfield Alternative would not result in a change of ownership at this site. There would continue to be no property taxes paid on the site. This would result in no measurable impact to property taxes as property tax revenues would not change under this alternative, resulting in continued indirect, long-term, adverse impacts to property tax revenues in Fairfax County as a result of the continued exemption of the property from county property taxes.

There may be some impacts to sales and income taxes in Fairfax County and the Washington, D.C., MSA during the construction period as a result of income taxes that would be applied to the income of construction workers and sales taxes applied to goods and services procured to support the construction of the consolidated FBI HQ. This would result in indirect, short-term, beneficial impacts to Fairfax County’s sales and income tax revenues.

There could also be an increase in sales and income tax revenues to Fairfax County, as a result of FBI HQ employees spending their income within the county. Additionally, any incomes earned by individuals who relocate to Fairfax County as a result of this project would generate income taxes for Fairfax County. These increases in sales and income taxes would result in indirect, long-term, beneficial impacts to tax revenues in Fairfax County.

7.2.7.4 Schools and Community Services

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to either schools or community services because the continued operation of the site as a GSA warehouse complex would not alter the current condition of schools and community services in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

Similar to the Greenbelt and Landover Alternatives, the Springfield Alternative could result in the potential relocation of some of the current FBI HQ’s total employed workforce. Some of these employees would relocate with their families. However, as described in the Population and Housing analysis, it is assumed that many of these employees currently reside in the Washington, D.C., MSA and if they relocate their primary residences as result of this alternative, the new residence would likely be located within the Washington, D.C., MSA. Therefore, there is no net change in impacts, and, subsequently, no measurable impacts to schools in the Washington, D.C., MSA as a result of employees changing permanent residences within the Washington, D.C., MSA.

Some FBI HQ employees may choose to relocate to Fairfax County in order to be closer to the consolidated FBI HQ under this alternative. Any movement of families into Fairfax County would have a short-term, adverse impact to schools as a result of increasing the student load on the local school system until the system adjusts to the increase in the number of students. Additionally, there would be indirect, long-term, beneficial impacts as a result of increased school funding through increased property taxes. However, there is insufficient information available at this time to determine the impact to schools because the number of persons who would relocate to Fairfax County as a result of this alternative is unknown.

The development of the Springfield site could result in short-term, adverse impacts on police services, fire and emergency services, and medical facilities by increasing the demand for these services during the construction period. However, there is insufficient information available at this time to determine these impacts as the amount of additional demand that would be placed on community services during the construction period is unknown. There would be no measureable impacts to schools in the short-term. Additional commuters to the Springfield site might result in the need for additional police and law enforcement support for a variety of reasons (e.g., occasional traffic control, accident response) in the local county area. However, commuters would be moving within the Washington, D.C., MSA so there would be no change in the impacts to the public services in the Washington, D.C., MSA. Locally, there may be some impacts to police services, fire and emergency services, and medical facilities from the operation of the consolidated FBI HQ under this alternative. Police response times throughout Fairfax County increased between 2013 and 2014, so it is possible that there may be some service issues associated with the local police department as a result of the construction and operation of this facility. However, because the FBI has its own police force that acts as security for FBI facilities, information, and personnel there is likely to be no measurable long-term impact to local police. There would be no measurable long-term impacts to medical or fire services given the suburban nature of the area and the concentration of businesses already in the area.

7.2.7.5 Recreation and Other Community Facilities

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to recreation or other community facilities because the continued operation of the site as a GSA warehouse complex would not alter the current condition of recreation resources or other community facilities in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

Under the Springfield Alternative, commuters to this site could visit local parks, recreation centers, gyms, or other community facilities during weekdays. These impacts would likely occur during the early mornings, mid-day lunch hour, or in the evenings. The consolidated FBI HQ is expected to have a recreation center on-site, which would mitigate impacts to local recreation facilities because employees would likely use the on-site recreation facilities as opposed to community recreation facilities. Both adverse and beneficial impacts to recreation resources and other community facilities could occur due to increased visitation at these sites and as a result of FBI HQ employees spending their income at these resources, respectively. As shown under the No-action Alternative for Greenbelt, increased visitation could lead to overuse and eventual damage to recreation resources and community facilities. Employee spending could also support local employment, income, and sales. However, there is insufficient information available at this time to determine the impacts that would occur to recreation and other community facilities under this alternative.

7.2.7.6 Environmental Justice

No-action Alternative

Under the No-action Alternative at the Springfield site, the continued operation of the site as a GSA warehouse complex would not change employment, housing, income, population, schools, or community services in Fairfax County or the Washington, D.C., MSA. Therefore, there would be no measurable impacts to low-income or minority populations resulting in no environmental justice impacts.

Springfield Alternative

Of the 11 census tracts within 1 mile of the Springfield site, there are 6 tracts with relatively high minority populations. Therefore, a majority of the census tracts around the Springfield site contain sensitive communities (see figure 7-4).

The Springfield Alternative could result in the creation of jobs in Fairfax County as new businesses open to support construction workers and FBI HQ employees. These new businesses could beneficially impact the local community and the Washington, D.C., MSA through the creation of new income, employment, and sales in both the short and long term. Some new construction-related jobs would also be created in the short term, which could result in the creation of additional income and employment for local residents. Some of the local residents that fill these jobs could come from the low-income or minority communities identified in section 7.2.7.6. However, actual hiring practices would be determined by the construction contractor for this project or by proprietors who own these businesses; therefore, it is not certain that any jobs created under this alternative would be filled by persons from low-income or minority communities.

As indicated in section 7.2.11, there would be no adverse impacts to transportation or transit services; however, there would be some noise and air-quality related impacts.

Similar to impacts under the Greenbelt and Landover Action Alternatives, air quality impacts, while adverse, would disperse across an area wider than the 1-mile radius of the site used for the environmental justice analysis and would therefore impact more census tracts than those identified under this analysis. Furthermore, national air quality standards would not be exceeded at the closest sensitive receptors (see figures 7-50 and 7-51 in the Air Quality Environmental Consequences), and an adverse impact would only occur if they are exceeded. Because any air quality impacts would occur to census tracts both within and outside the 1-mile boundary of the Springfield site, there would be no disproportionate impacts to sensitive populations. Because national air quality standards would not be exceeded, there would be no adverse impacts to minority or low income populations. Therefore, there are not anticipated to be any environmental justice impacts resulting from air quality impacts.

Impacts from noise would be adverse during the short term. However, it is expected that construction crews would follow local noise ordinances, including timing of construction noise, to mitigate adverse impacts to sensitive populations.

Because there would be no long-term, adverse impacts to minority or low-income communities, and because short-term, adverse impacts would be mitigated to the extent practicable and permitted by law, there are not anticipated to be any environmental justice impacts under this Alternative.

SPRINGFIELD RECREATION & OTHER COMMUNITY FACILITIES ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts.
- Springfield Alternative: Insufficient information available at this time to determine the impacts that would occur to recreation and other community facilities.

SPRINGFIELD ENVIRONMENTAL JUSTICE ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts.
- Springfield Alternative: No short- or long-term adverse impacts to minority or low-income communities.

SPRINGFIELD PROTECTION OF CHILDREN ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No mitigation of disproportionate and adverse impacts to children is required under EO 13045.

7.2.7.7 Protection of Children

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to children because the continued operation of the site as a GSA warehouse complex would not impact children living near the site or children attending childcare centers or schools in close proximity to the site.

Springfield Alternative

As described in section 7.1.7, three childcare centers are near the Springfield site. Laalee Day Care is located on the western side of I-95 and is located approximately 0.5 mile southwest of the site. Lily Pad at Petro Park is located approximately 1 mile from the site, away from main roads. No impacts to these childcare centers are expected. Kingstowne Kindercare and Lane Elementary School are located approximately 1 mile east of the site along Beulah Street Road. This road could be used for construction traffic and may see an increase in commuter traffic as a result of this project. Forestdale Elementary School is located approximately 0.5 mile north of the site along Franconia Road East. This road also could be used for construction traffic and may see an increase in commuter traffic. A neighborhood located southwest of the site and an apartment community located northwest of the site could be impacted by construction noise and air quality issues.

Some impacts to children, such as releases of odor and dust during the construction of the Springfield site, may occur if children live in the neighborhoods in close proximity to the site. Additionally, an increase in construction and operations-related traffic to and from the site could impact children who are commuting or walking to school. However, because the neighborhoods most likely to be impacted by this alternative are not made up predominantly of children, these impacts would not have a disproportionately high and adverse impact to children. Therefore, no mitigation of disproportionate and adverse impacts to children is required under EO 13045 as a result of this scenario.

7.2.8 Public Health and Safety/Hazardous Materials

The following sections describe the environmental consequences for public health and safety and hazardous materials under both the No-action Alternative at the Springfield site and the Springfield

PUBLIC HEALTH AND SAFETY/HAZARDOUS MATERIALS ASSESSMENT OF SIGNIFICANCE

Impacts to public health and safety and those related to hazardous materials would not be significant, as defined in section 3.9.3.

Alternative

7.2.8.1 Public Health and Safety

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to emergency services and life safety because the continued operation of the site as a GSA warehouse complex would not impact the demand or capacity for emergency services or the risk of harm to the public.

Springfield Alternative

Under the Springfield Alternative, there would be direct, short-term, adverse impacts to emergency services and life safety at the Springfield site associated with on-site construction activities. The Springfield Alternative would involve the implementation of similar construction-phase life safety procedures as those described in section 5.2.10 for the Greenbelt site. As a result, there would be direct, short-term, adverse impacts to emergency services and life safety at the Springfield site associated with on-site construction activities.

Over the long term, there would be no measurable impacts to public health and safety. As a high profile Federal building, the presence of the FBI HQ at the Springfield site could increase the potential for intentional destructive acts; however, the FBI would maintain a site-specific emergency response plan to minimize any potential risks to FBI employees or the public. Likewise, the response time and capacity of existing law enforcement, fire, and emergency response agencies is expected to be adequate at the Springfield site.

Lastly, the operation of a firing range for employee use within the campus could pose safety concerns to employees using the facility. Public access would be restricted and employee use would be consistent with Occupational Safety and Health Administration regulations (29 CFR Parts 1900–1999); however, a slight risk of injury would remain.

Transportation Mitigations

The recommended traffic mitigation measures within the transportation study area, as shown in figure 7-48, would be beneficial to emergency services and life safety. The implementation of these improvements would improve the flow of traffic and reduce response times for emergency vehicles. Therefore, there would be direct, long-term, beneficial impacts to public health and safety associated with traffic mitigation measures.

7.2.8.2 Hazardous Materials

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no new measurable impacts related to hazardous materials. The continued operation of the site as a GSA warehouse complex would not disturb existing hazardous materials on the site; however, there would continue to be a risk of environmental contamination at the site.

Springfield Alternative

Similar to the Greenbelt Alternative, spill prevention and response procedures would be implemented at the Springfield site during construction to prevent hazardous materials spills such as vehicle and equipment fuels and maintenance fluids. As a result, no measurable impacts related to hazardous materials spills and cleanup are anticipated at the Springfield site.

GSA commissioned a Phase I ESA for the Springfield site in November 2014 (Louis Berger 2014c). The assessment documented potential soil and groundwater contamination at the site associated with underground storage tanks, along with the presence of lead-based paint and asbestos containing materials (Louis Berger 2014b). The assessment also documented several off-site sources of potential contamination within the surrounding vicinity, but concluded that these did not have potential to affect the Springfield site. Additional subsurface investigations, lead and asbestos abatement, and other remediation activities would be required at the Springfield site. Once site remediation is completed, construction of the campus at the Springfield site is expected to occur without the potential to mobilize contamination into the environment. As a result, there would be direct, long-term, beneficial impacts at the Springfield site resulting from the removal of sources of environmental contamination and remediation of potentially contaminated soils and water.

During operation of the facility, materials handling and storage protocols for the delivery and on-site use of hazardous materials (e.g., ammunition for the shooting range) would be implemented, minimizing the potential for adverse impacts to the extent that they are not measurable.

Transportation Mitigations

Impacts to hazardous materials could occur if environmental contamination is discovered along the roadways recommended for widening, as shown in figure 7-48, or other ground-disturbing improvements. Additional subsurface investigations and potential remediation activities would be required before construction would occur, reducing the potential to introduce contamination into the environment.

SPRINGFIELD PUBLIC HEALTH AND SAFETY ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts.

SPRINGFIELD HAZARDOUS MATERIALS CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, long-term, beneficial impacts.

Table 7-23: Springfield Planned Developments

Name	Type of Construction/Size	Location/Primary Access
Safford Automobile Dealership	80,000 SF of retail space	Loisdale Road approximately 1 mile north of Fairfax County Parkway and 0.5 mile south of Lois Drive. The primary access would be from Loisdale Road.
Springfield Metro Center II	544,120 SF of office space (phase I) 517,600 SF of office space (phase II)	Frontier Drive Extension, adjacent to the Springfield site According to the site plan, there would be four access points to the development from the Frontier Drive Extension leading to one large shared parking garage.

7.2.9 Transportation

The Transportation impact analysis considers two conditions:

- No-build Condition assumes FBI remains at the FBI HQ building in Washington, D.C., and the Springfield site remains GSA-owned property.
- Build Condition is the consolidation of the FBI HQ at the Springfield site.

The analysis of the No-build Condition serves as the baseline against which the impacts of the Proposed Action would be compared.

TRANSPORTATION
ASSESSMENT OF SIGNIFICANCE

Impacts to traffic under the Springfield Alternative would be significant, as defined in section 3.10. Other resources considered under transportation would not result in significant impacts.

7.2.9.1 No-build Condition

This section introduces the No-build Condition for the Springfield site and provides a summary of each mode of travel and the potential impact caused if the Springfield Alternative does not occur. This includes descriptions of the pedestrian network, bicycle network, public transit system, parking conditions, truck access, and traffic operations.

Planned Developments

According to the Springfield Site Transportation Agreement (Appendix A), three planned developments were included as part of the No-build Condition. These developments ranged from a small 80,000 SF automobile dealership to up to two approximately 500,000 SF office buildings with associated parking. The developments would be located south of Franconia Springfield Parkway along Loisdale Road or along a planned southern extension of Frontier Drive. The planned developments include the projects as shown in figure 7-35 and listed in table 7-23 (FCDOT 2013; FCDOT 2008; VDOT 2008).

Planned Roadway Improvements

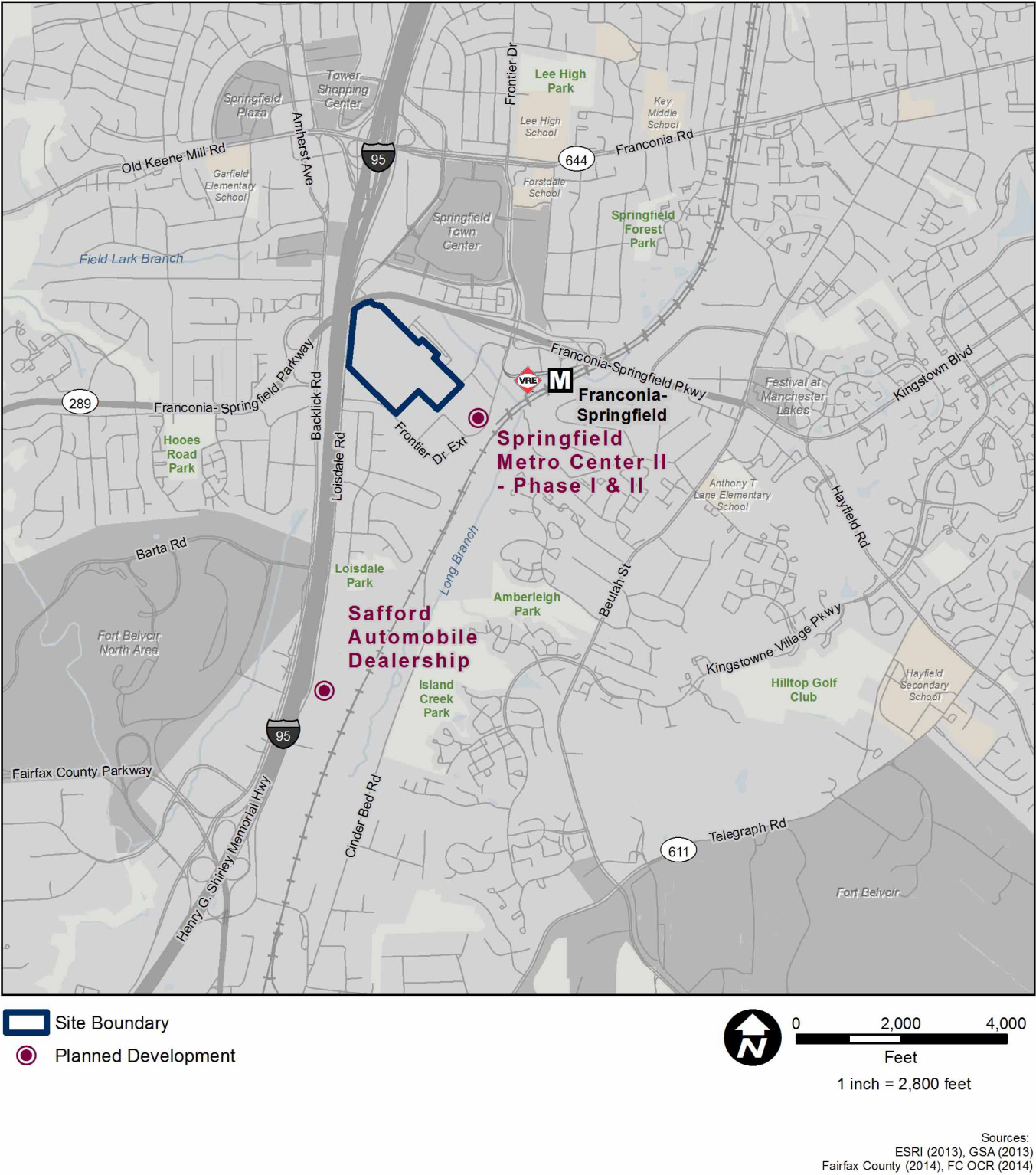
There are a number of planned roadway improvements scheduled to be constructed by the project horizon year (2022) including a new roadway, redesign of the roadways serving the Franconia-Springfield Metro Station, widening of several road segments, and substantial upgrades to existing intersection geometry. Many of these improvements are part of the Springfield Town Center Proffers (FCDOT 2015a). FCDOT selected the specific proffers to include in this study through the Springfield Site Transportation Agreement. The planned improvements are as follows:

- A. **The Frontier Drive Extension** would add a four-lane roadway with a parkway through the median and would directly connect Loisdale Road to the Franconia-Springfield Metro Station and Franconia-Springfield Parkway. This new connection is planned in conjunction with the redesign of the Metrorail station access roadways and would change the station’s access points and circulation pattern. It would improve access along the corridor, especially to the Franconia-Springfield Metro Station.

- B. **The Franconia-Springfield Metro Station** redesign would alter the access to and from the station by changing the circulation from a one-direction looping network of roadways (similar to an airport design) to two sets of access roadways. One set would serve the Kiss & Ride, bus bays, and south/west garage access points. The other set would serve the north/east garage access points. Both sets would join at a proposed roundabout in the station's southwest corner. The parking garage would have designated exits for Frontier Drive and Franconia Springfield Parkway. All Kiss & Ride and bus bay access would only be accessible from Frontier Drive and would only exit to Franconia Springfield Parkway. A new intersection would include the construction of three southbound left-turn lanes from the Frontier Drive Extension to the Metrorail station, one right-turn lane from the Frontier Drive Extension to the Metrorail station, and one combined right- and left-turn lane from the Metrorail station to the Frontier Drive Extension.
- C. **Loisdale Road and VA 286 (Fairfax County Parkway)** would add a second southbound left-turn lane from VA 286 southbound to Loisdale Road, a second westbound left from Loisdale Road to VA 286 southbound, and an exclusive northbound right-turn lane from VA 286 to Loisdale Road.
- D. **Loisdale Road and Frontier Drive Extension** would install a new traffic signal, a southbound left-turn lane from Loisdale Road to Frontier Drive Extension, a northbound right-turn lane from Loisdale Road to Frontier Driver Extension, and the westbound approach would include one left-turn-lane and one right-turn lane.
- E. **Loisdale Road and Metropolitan Center Drive** would install of a new traffic signal.
- F. **Loisdale Road and Spring Mall Drive** would widen southbound Loisdale Road between South Street and Spring Mall Drive to two through lanes, one full-length left-turn lane and one left-turn bay onto eastbound Spring Mall Drive. It would also include constructing a new right-turn bay from the eastbound I-95 off-ramp to southbound Loisdale Road and modifying the remaining approach lanes to accommodate two through lanes onto Spring Mall Drive and two dedicated left-turn lanes onto northbound Loisdale Road.

- G. **Loisdale Road and Lois Lane/South Street** would widen northbound Loisdale Road to accommodate a third through lane from Spring Mall Drive to Lois Lane, widen southbound Loisdale Road between Franconia Road and South Street to three through lanes, and construct a second left-turn bay onto eastbound South Street.
- H. **Loisdale Road and Franconia Road Eastbound** would widen Franconia Road to accommodate a third eastbound through lane from approximately 750 feet west of Loisdale Road, or the maximum extent possible as determined by FCDOT, to Village Drive. It would also widen northbound Loisdale Road to accommodate a second northbound through lane from Lois Lane through the intersection with Franconia Road. The northbound approach would include three left-turn lanes, two through lanes, and one right-turn lane. The three left-turn lanes and two through lanes would continue through the next intersection.
- I. **Frontier Drive and Spring Mall Drive** would include constructing an additional left-turn lane from northbound Frontier Drive onto westbound Spring Mall Drive, including an at-least 4-feet-wide pedestrian refuge in the Frontier Drive median.
- J. **Frontier Drive and Franconia-Springfield Parkway Westbound** on/off ramps would remove the island channelizing the southbound right-turn movement from Frontier Drive onto westbound Franconia-Springfield Parkway to create dual right-turn lanes.
- K. **Frontier Drive and Franconia-Springfield Parkway Eastbound** on/off ramps would add a northbound right-turn movement from Frontier Drive onto eastbound Franconia-Springfield Parkway.
- L. **Frontier Drive Extension and Metropolitan Center Drive Extension** would include a new unsignalized intersection with the Metropolitan Center Drive Extension eastbound approach STOP-sign controlled.
- M. **Franconia-Springfield Parkway and I-95 HOT Lanes** would include adding a second left-turn lane from Franconia-Springfield Parkway to I-95 HOT Lanes northbound.

Figure 7-35: Springfield No-build Condition Planned Development Locations



**SPRINGFIELD PEDESTRIAN
NETWORK ENVIRONMENTAL
CONSEQUENCES SUMMARY**


 **No-build Condition:** Direct, long-term, beneficial impacts.

Figure 7-36 shows the No-build Condition planned roadway improvement locations. Figure 7-37 shows the No-build Condition planned roadway improvements lane geometry and the new intersections added to the study area for analysis.

No-build Condition Pedestrian Network

Although there were no clear pedestrian funding categories in the Northern Virginia Transportation Improvement Plan for FY 2015-2020, the Greater Springfield Chamber of Commerce and county staff have been working to direct attention and funds to the Franconia-Springfield District for pedestrian and bicycle improvements (FC OCR 2014a). The Fairfax County FY 2015–FY 2019 Adopted Capital Improvement Program does include a fund for Springfield Streetscape Revitalization, but detailed improvement plans were not released (Fairfax County 2014fe).

With implementation of the Frontier Drive Extension to intersect with Loisdale Road via Springfield Center Drive, upgrades to sidewalks along the extension are expected to adhere to the new Franconia-Springfield District’s streetscape guidelines that were adopted by the county’s comprehensive plan. These improvements would improve the pedestrian access within the study area by providing additional connectivity. The Springfield Metro Center II Phase I project would also provide additional pedestrian sidewalks and amenities in the study area, improving the pedestrian environment near the Springfield site. The additional traffic from the Frontier Drive Extension and the Springfield Metro Center II project would create the opportunity for more conflicts between pedestrians and vehicles, but these should be mitigated with pedestrian crosswalks, traffic calming, and if needed, traffic controls designed with the project.

Therefore, under the No-build Condition, there would be direct, long-term, beneficial impacts to pedestrians because the increased connections would improve their access to the surrounding street network and nearby land uses. Adverse impacts to pedestrians from increased traffic levels in the study area would be avoided by the implementation of pedestrian crossings at the new intersections.

Figure 7-36: Springfield No-build Condition Planned Roadway Improvement Locations

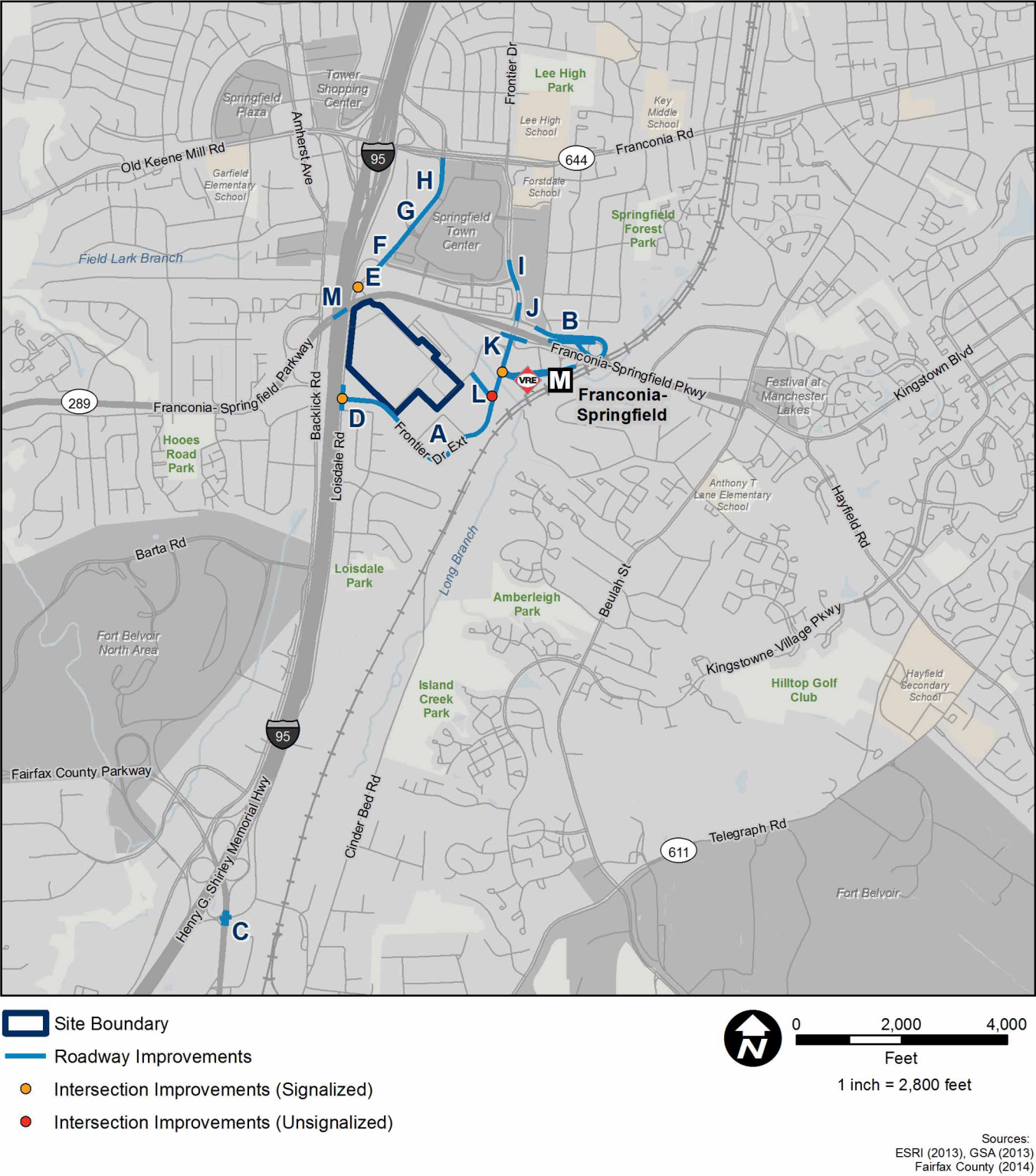


Figure 7-37: Springfield No-build Condition Lane Geometry Map

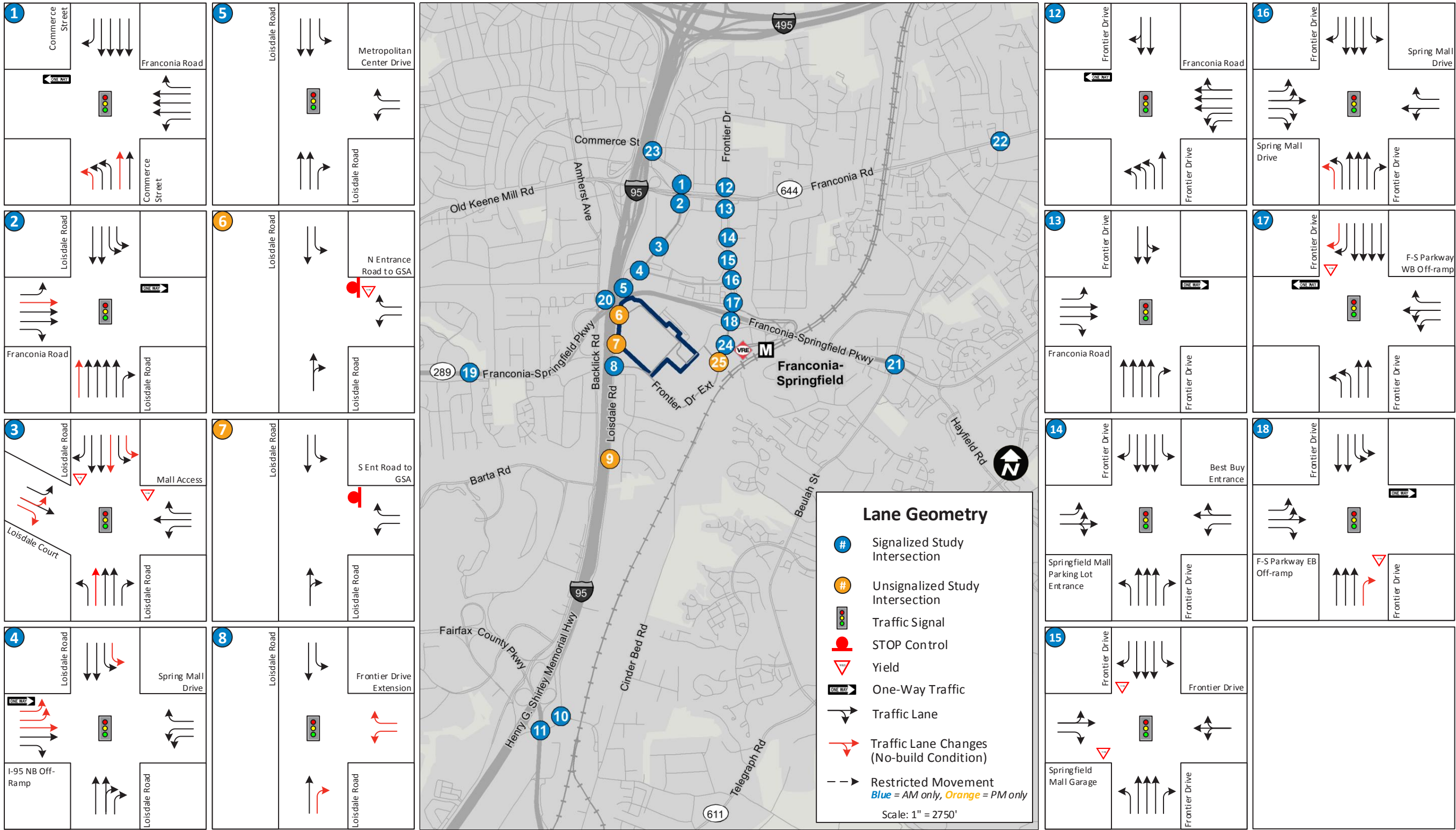
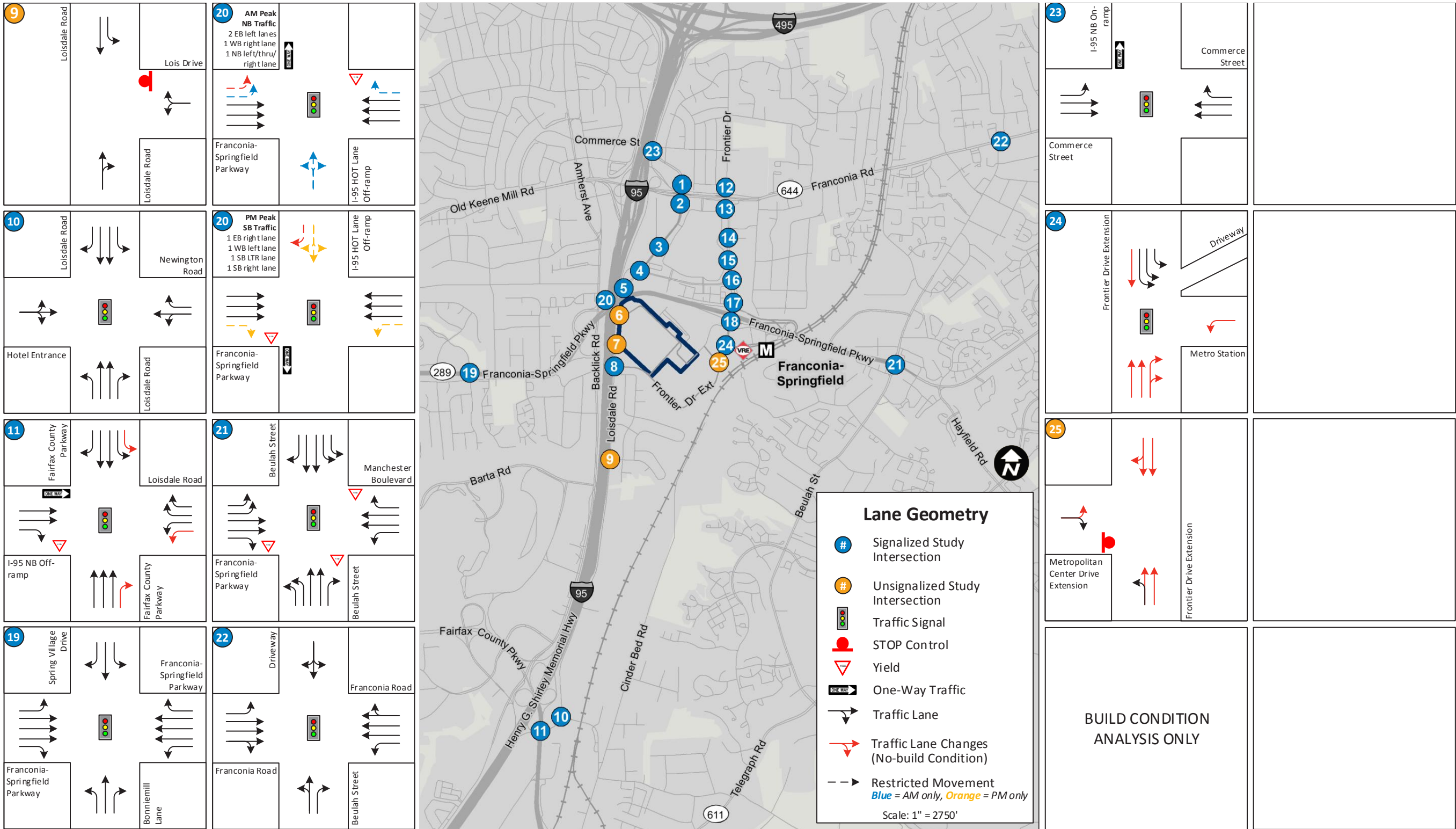
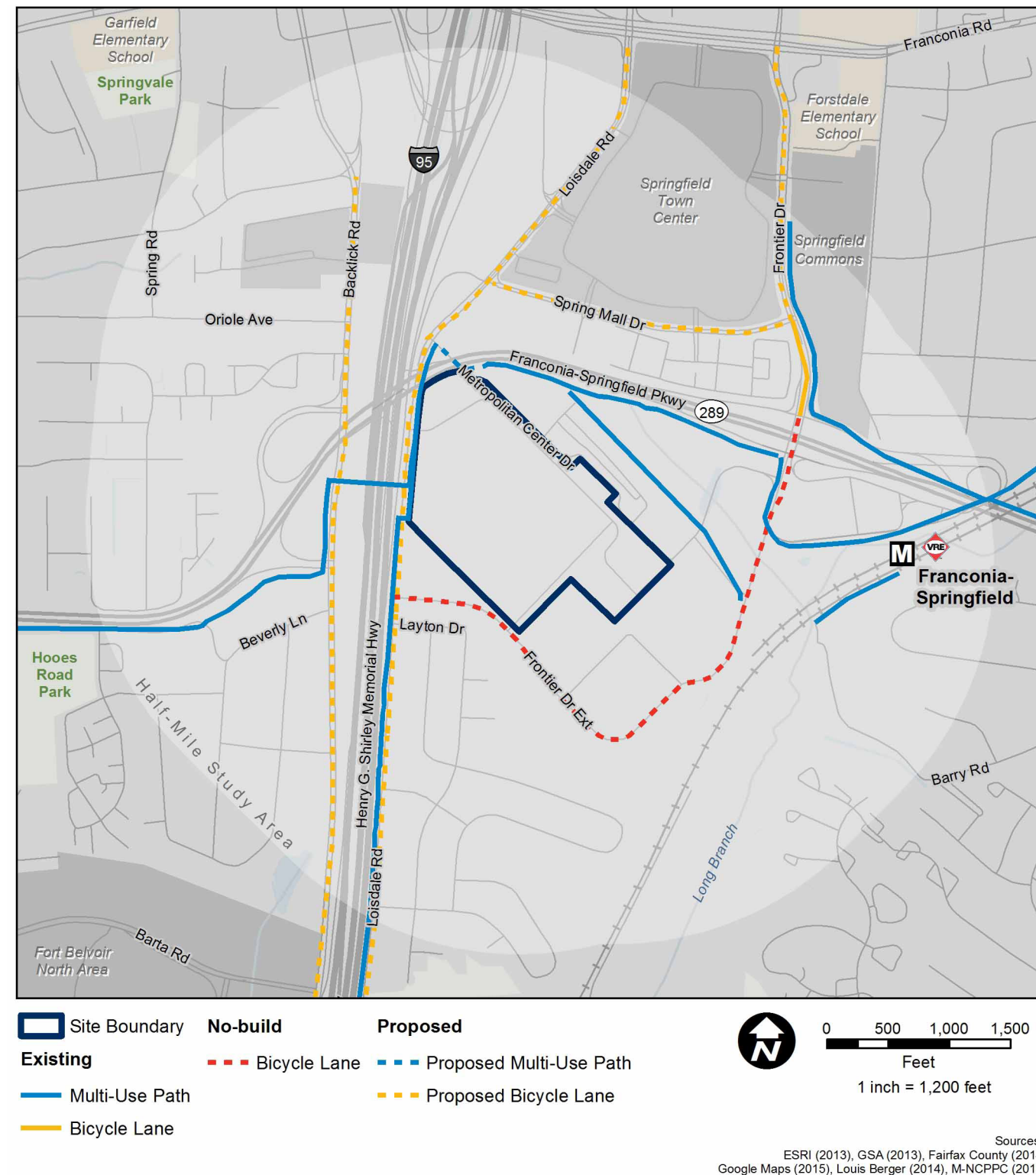


Figure 7-37: Springfield No-build Condition Lane Geometry Map (continued)



Note: EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound. Intersection #20 operates with a different lane configuration during the AM and PM peak hours.

Figure 7-38: Proposed Springfield Area Bicycle Facilities



No-build Condition Bicycle Network

The Fairfax County Bicycle Master Plan recommends new bicycle lanes on several roadways within the study area, including Backlick Road, Loisdale Road, the planned Frontier Drive Extension (currently Springfield Center Drive adjacent to the Springfield site), Spring Mall Drive, and Frontier Drive (Fairfax County 2014d). The Fairfax County Office of Community Revitalization also notes that a safety improvement is currently in design for bicycle access improvements on Metropolitan Center Drive at the entrance to the Franconia-Springfield Parkway trail just north of the Springfield site (FC OCR 2014b). It is believed this improvement on Metropolitan Center Drive would provide the missing bicycle link between the end of the Franconia-Springfield Parkway trail on the eastern side of I-95 and the sidewalks on Loisdale Road that link to the pedestrian bridge over I-95, and subsequently to the western portion of the Franconia-Springfield Parkway trail. These recommended bicycle facilities are illustrated in table 7-24 and figure 7-38, along with the existing bicycle facilities in the study area. Currently, there is no date for implementation of these recommendations, with the exception of the Frontier Drive Extension bicycle lane facilities which VDOT plans to construct by 2022 (Springfield Site Transportation Agreement 2015 - Appendix A; FCDOT 2014b). In table 7-24 and figure 7-38, those bicycle facilities that are planned with no implementation date are shown as proposed, and the Frontier Drive Extension with a completion date of 2022 is shown as part of the No-build Condition.

In addition to the planned bicycle improvements, the Fairfax County Board of Supervisors has committed funds in FY2015-2020 for installing covered bicycle parking to accommodate at least 30 bicycles at the Franconia-Springfield Metro Station and VRE station (FCDOT 2014b). With this project, access driveway pavement, lighting, and security improvements may also be provided. The Board of Supervisors has also committed funds to enhance both bicycle and pedestrian access from the Northern Virginia Community College – Medical Campus, adjacent to the Springfield site, to the Franconia-Springfield Metro Station and nearby activity centers. These improvements would undoubtedly benefit future pedestrians and bicyclists.

As noted earlier, the Frontier Drive Extension project does include bicycle lanes in the planned project. Because this improvement is included in the No-build Condition roadway improvements, it is assumed the project with associated bicycle improvements would be complete by 2022, as well as the local area bicycle improvements funded by the Fairfax County Board of Supervisors for FY2015-2020 (FCDOT 2014b). Therefore, there would be direct, long-term, beneficial impacts on bicycle conditions in the study area for the No-build Condition, with additional beneficial impacts if other planned improvements are implemented.

No-build Condition Public Transit

The following sections describe the No-build Condition for the Metrorail and bus modes within the Springfield study area.

Projected Transit Growth

Growth in the transit mode was calculated for 2022 using regional transit growth rates and projected ridership associated with large planned projects in proximity to the site. Refer to section 3.10.4.3 for more detailed information about the Metrorail and bus growth calculations.

There is one planned project, Springfield Metro Center II, in proximity to the site. Fairfax County determined that 43 percent of the trips associated with this development were already accounted for in the MWCOG model background growth rate, so only 57 percent of the development’s trips needed to be added following the Springfield Site Transportation Agreement (Appendix A). Trips associated with this project were calculated based on Institute of Transportation Engineers trip generation rates and the non-single occupancy vehicle (non-SOV) mode split determined in the traffic analysis section of this document (section 4.7, Traffic Analysis in the Springfield TIA) and the Springfield Site Transportation Agreement (Appendix A).

Fairfax County typically assigns 40 percent of trips to non-SOV modes for development projects located between 0.25-mile and 0.5-mile from a Metrorail station (T. Burke 2015). The non-SOV mode trips were further disaggregated (separated) into Metrorail trips and bus trips using bus and subway proportions from the 2009-2013 American Community Survey means of transportation data for the census tract containing the study area (U.S. Census Bureau 2009-2013). The American Community Survey is an on-going annual sampling of demographic data (including mode of travel) across the United States conducted by the U.S. Census Bureau. Metrorail trips associated with the Springfield Metro Center II project were added to projected growth at Franconia-Springfield Metro Station, and bus trips associated with the project were added to projected growth in bus ridership within the study area.

Table 7-24: Recommended Bicycle Facilities in the Springfield Study Area

Roadway	From/To	Type	Future Status	Notes
Backlick Road	Amherst Ave to Fairfax County Parkway	Bicycle Lane	Proposed	-
Loisdale Road	Franconia Road to Fairfax County Parkway	Bicycle Lane	Proposed	Includes climbing lane from Springfield Center Drive to Barta Road
Frontier Drive Extension (Springfield Center Drive)	Loisdale Road to Franconia-Springfield Parkway	Bicycle Lane	No-build Condition	Adjacent to Springfield site; this improvement is planned with the Frontier Drive Extension project
Spring Mall Drive	Loisdale Road to Frontier Drive	Bicycle Lane	Proposed	-
Frontier Drive	Franconia-Springfield Parkway to Franconia Road	Bicycle Lane	Proposed	Portions of this bicycle lane were built in 2015
Franconia-Springfield Parkway Trail	On Metropolitan Center Drive at the entrance to the Franconia-Springfield Parkway Trail	Trail Access Improvements	Proposed	Project would improve safety

Source: Fairfax County (2014c); FC OCR (2014b); Site Visit (May 8, 2015)

SPRINGFIELD BICYCLE ENVIRONMENTAL CONSEQUENCES SUMMARY

No-build Condition: Direct, long-term, beneficial impacts.

Table 7-25: Projected Trips Associated with the Springfield Metro Center II project

Period	Springfield Metro Center Total Non-SOV Trips Per Hour			Subway Proportion of Non-SOV	Metrorail Passenger Trips Per Hour			Peak Hour Factor	Metrorail Passenger Trips Per 15-Minutes		
	IN	OUT	TOTAL		Exits	Entries	Total		Exits	Entries	Total
AM Peak	292	40	332	55.5%	162	22	184	25.3%	41	6	47
PM Peak	52	254	307	55.5%	29	141	170	29.1%	8	41	49

Source: WMATA (2014m); Springfield Site Transportation Agreement (Appendix A); U.S. Census Bureau (2009-2013)

Table 7-26: Weekday 2022 Projected Metrorail Ridership at Franconia-Springfield Metro Station

Metro Station	Average Weekly Entries			
	2014	2022 with Background Growth	2022 Development Projects	2022 Total No-build
Franconia-Springfield	7,566	8,915	163	9,078

Source: WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

SPRINGFIELD PUBLIC TRANSIT ENVIRONMENTAL CONSEQUENCES SUMMARY

No-build Condition: No measurable impacts.

Table 7-27: Projected Maximum 15-Minute Metrorail Passenger Loads at Franconia-Springfield Metro Station

Franconia - Springfield	Unit
2014 Maximum 15-minute Passengers (outbound exiting passengers during PM peak period)	486
2022 Passengers with Background Growth	572
2022 Passengers with Development Projects	8
2022 Total No-build Passengers	580
2022 Minimum Trains ^a	2
2022 Train Cars ^b	14
2022 Maximum Passengers Per Car	41

^a A 6-minute headway equates to 2.5 trains every 15 minutes. This figure was rounded down to 2 minutes to provide the most conservative load estimate.
^b Assuming one 8-car train (Blue line) and one 6-car train at Franconia-Springfield.
Source: WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Metrorail Analysis

The Metrorail analysis was conducted using projected ridership growth in the system at the Franconia-Springfield Metro Station and ridership projected for planned development projects in the study area.

Ridership Growth from Planned Projects

As previously mentioned, additional transit trips associated with Springfield Metro Center II were added to future projected ridership at the Franconia-Springfield Metro Station. As noted in *Projected Transit Growth*, 57 percent of the peak hour non-SOV project trips were used as the starting point to determine Metrorail trips associated with the Springfield Metro Center II project. These trips associated with the development were disaggregated into peak hour Metrorail trips using subway proportions from the 2009-2013 American Community Survey (U.S. Census Bureau 2009-2013) means of transportation data for the census tract containing the development. The peak hour Metrorail passenger trips were then disaggregated into peak AM and PM 15-minute totals using the current AM and PM peak hour factors (PHF) at the station (WMATA 2014x). A PHF is the proportion of peak hour ridership that occurs during the peak 15-minute period in that hour. The additional Metrorail trips associated with the Springfield Metro Center II project are summarized in table 7-25. AM peak 15-minute ridership is used in the station platform and fare vending capacity analysis. PM peak 15-minute ridership is used in the station vertical and faregate aisle capacity analysis, the passenger load analysis, and the emergency evacuation (National Fire Protection Association [NFPA] 130) analysis. Each represents the peak use.

Regional Transit Growth Rate

Background ridership growth at the Franconia-Springfield Metro Station in the study area for 2022 was calculated based on the 2.1 percent Metrorail growth rate from the MWCOG travel demand model (MWCOG 2015). Table 7-26 summarizes projected 2022 weekday entries at Franconia-Springfield Metro Station, including background growth and growth from planned projects. Average weekday exits are assumed to be the same or very similar to average weekday entries.

Metrorail Passenger Loads

Refer to section 3.10.4.3 for a detailed explanation of how Metrorail passenger loads were calculated. At the Franconia-Springfield Metro Station under the No-build Condition, PM peak exits were the highest of AM peak entries, AM peak exits, PM peak entries, and PM peak exits, and therefore were used to calculate maximum passenger loads. The maximum passenger per car load is projected to be 41 passengers by 2022. This value is well below the 100 passenger per car threshold and therefore would be considered acceptable. Table 7-27 summarizes passenger loads per car in 2022 under the No-build Condition using PM peak 15-minute exits.

Station Capacity Analysis

Refer to section 3.10.4.3 for a detailed description of how station capacity was analyzed. Table 7-28 summarizes ridership growth during the PM peak exiting periods at the station, and table 7-29 summarizes ridership growth during the AM peak entering periods.

Overall, vertical elements, faregate aisles, and fare vending machines at the station are projected to operate within capacity, or below a v/c of 0.7, which is considered capacity. Additionally, platform peak pedestrian levels of service (based on the available spacing between passengers) on the busiest platform sections are projected to be at the acceptable LOS B. Further details on the station capacity analysis and emergency evacuation analysis are found in Springfield TIA (Appendix E).

Bus Analysis

For this analysis, it was assumed that there would be no major changes in bus service in the study area by 2022 (the May 2015 service changes did not add capacity to any routes in the study area). The analysis includes Metrobus and FXC routes that serve the study area because data were available for both systems.

To calculate peak hour bus volumes within the study area, the 2014 maximum weekday passenger loads for each route and direction at stops within the study area were averaged by stop, and then this figure was multiplied by the number of peak bus trips per hour to calculate ridership per peak hour by route and direction. These totals were then grown to the year 2022 using the 1.9 percent annual regional growth rate for the bus mode. The 2022 totals were then summed to calculate a total ridership per peak hour for the study area.

As noted in Projected Transit Growth section of the Springfield TIA (section 4.4.1), 57 percent of the peak hour non-SOV project trips were used as the starting point to determine bus trips associated with the Springfield Metro Center II project. The peak hour non-SOV trips associated with the Springfield Metro Center II development were disaggregated into peak hour bus trips using the bus mode proportion from the 2009-2013 American Community Survey means of transportation data (U.S. Census Bureau 2009-2013) for the census tract containing the development. This additional ridership, approximately 27 AM peak and 25 PM peak passenger trips (see table 7-30), was added to each route and direction proportionally based on existing ridership.

To calculate the peak hour capacity of bus services within the study area, the capacity per trip of each bus route during the peak hour was multiplied by the number of trips scheduled in the peak hour. Capacities per trip for each Metrobus route were based on the typical number of seats available on each trip and the WMATA load standard (WMATA 2013). Capacities per trip for each FXC route were also based on the typical number of seats available on each trip and the FXC load standard (Fairfax County 2014g).

Total 2014 peak hour bus ridership (Existing Condition) and projected 2022 peak hour bus ridership (No-build Condition) are summarized in table 7-31. Both 2014 and No-build Condition 2022 bus ridership are below the calculated overall capacity of bus services in the study area, meaning the additional passenger trips projected can be adequately handled by current service levels. Additionally, no individual routes are projected to have capacity issues by 2022.

The Springfield TIA (Appendix E) contains the Franconia-Springfield Metro Station bus bay analysis and further details on the bus capacity analysis.

Table 7-28: Weekday Peak 15-Minute Exiting Period Ridership Growth

Metro Station	Time	2014		2022 No-build	
		Entries	Exits	Entries	Exits
Franconia-Springfield	5:00 PM – 5:15 PM	82	486	138	581

Source: WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Table 7-29: Weekday Peak 15-Minute Entering Period Ridership Growth

Metro Station	Time	2014		2022 No-build	
		Entries	Exits	Entries	Exits
Franconia-Springfield	7:30 AM – 7:45 AM	445	41	530	89

Source: WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Table 7-30: Projected Bus Trips Associated with Springfield Metro Center II project

Period	Springfield Metro Center Total Non-SOV Trips			Bus Proportion of Non-SOV	Bus Trips		
	IN	OUT	TOTAL		IN	OUT	TOTAL
AM Peak Hour	292	40	332	8.0%	23	3	27
PM Peak Hour	52	254	307	8.0%	4	20	25

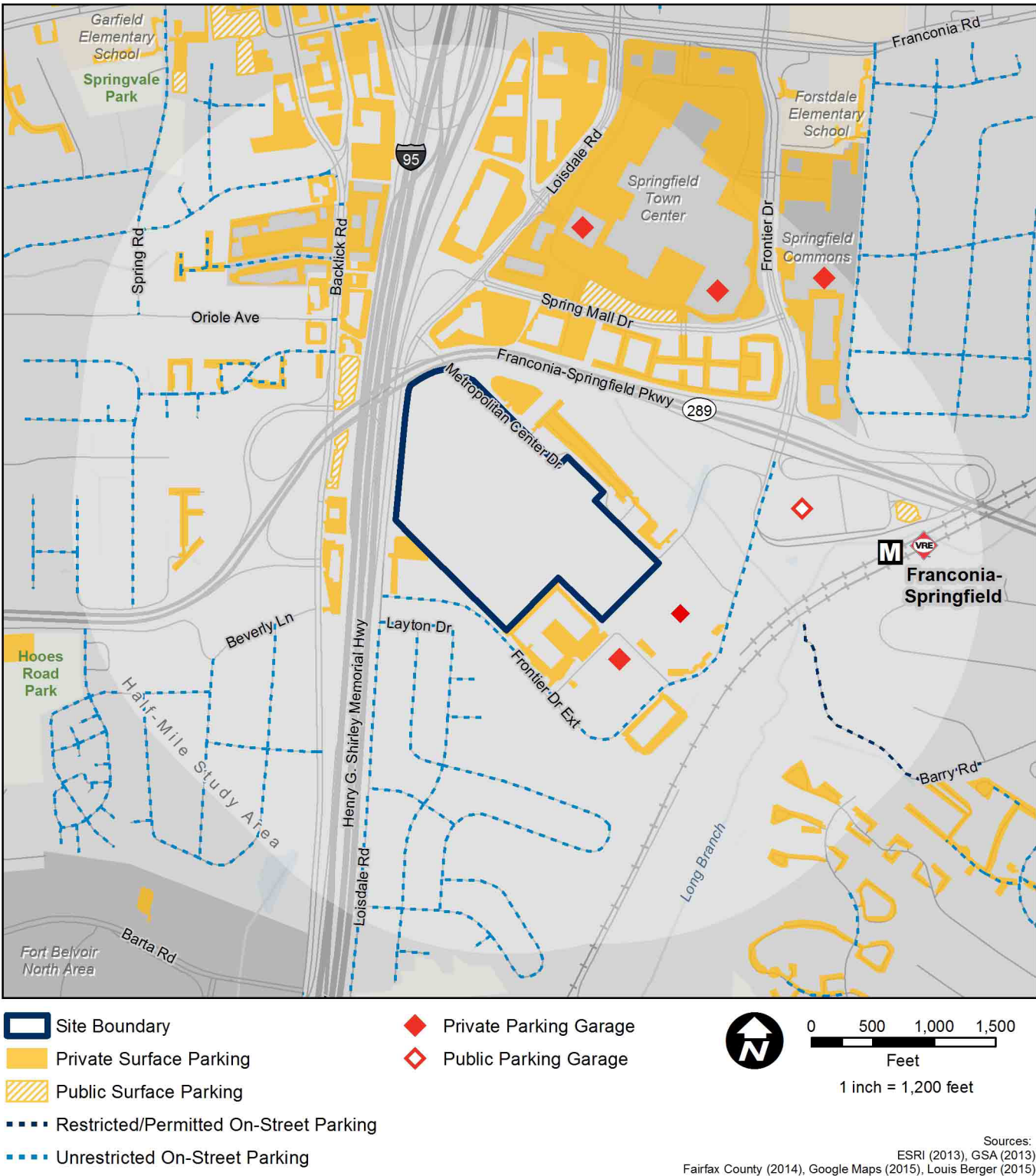
Note: Values may not appear to calculate correctly due to rounding.
Source: WMATA (2014o); Springfield Site Transportation Agreement (Appendix A); U.S. Census Bureau (2009–2013)

Table 7-31: Current and Projected Bus Ridership in the Springfield Study Area

Measure	2014		2022 Background Growth		2022 Development Projects		2022 Total No-build	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Total Volume	848	846	983	981	27	25	1,010	1,006
Total Capacity	2,843	2,824	2,843	2,824	-	-	2,843	2,824
Volume to Capacity Ratio (V/C)	0.30	0.30	0.35	0.35	-	-	0.36	0.36

Source: WMATA (2014o); Fairfax County (2015a); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A).

Figure 7-39: Springfield No-build Condition Planned Parking



Summary of Transit Analysis

The increase in public transit trips in the No-build Condition would have the following impacts on transit:

- No Metrobus routes or FXC routes would have capacity issues. Additionally, the overall capacity of bus services in the study area would accommodate the projected ridership.
- Metrorail passenger loads through the study area are projected to remain at acceptable levels.
- Metrorail vertical elements are projected to continue to operate below capacity.
- Metrorail faregate aisles and fare vending machines would continue to operate below capacity.
- Metrorail platform peak pedestrian LOS (based on the available spacing between passengers) on the busiest platform sections are projected to continue to be at the acceptable LOS B.
- Platform and station evacuation times would increase slightly over existing conditions. Platform evacuation times would continue to meet NFPA 130 standards, while station evacuation times would continue to slightly exceed NFPA 130 standards. However, WMATA Metrorail stations are not required to meet NFPA 130 standards.

The increase in public transit trips from nearby development projects and normal annual growth in transit ridership under the No-build Condition would not strain or bring the volume of the transit ridership above existing service level capacities. Therefore, the No-build Condition would have no measurable direct, long-term impacts to public transit capacity. However, bus operations (three bus routes) would have direct, long-term, major adverse impacts due to potential traffic delays along Franconia-Springfield Parkway (see Appendix E, section 4.7, Traffic Analysis).

No-build Condition Parking

Parking in the study area would likely experience changes (see figure 7-39. Minimal changes are envisioned to public parking in the 0.5-mile area around the Springfield site through 2022. However, with the extension of Frontier Drive from Franconia-Springfield Parkway to Loisdale Road, on-street parking would be added (FCDOT 2012). Additionally, just outside of the 0.5-mile study area for parking, a Springfield Community Business District Commuter Parking Garage would be built at Old Keene Mill Road and Springfield Boulevard (just west of Amherst Avenue) (FC OCR 2014b). The parking garage is planned to have more than 1,000 spaces to replace existing parking lots and spaces located in nearby shopping centers; it would act as a multi-modal center with multiple bus bays and be designed for sluggers (FC OCR 2014a).

Private parking areas in the study area would also likely increase. The Springfield Metro Center II project is planned to include the addition of a private parking garage for the project tenants southwest of the Springfield site. There may also be future parking changes at the Springfield Town Center with future development phases of the mall.

The No-build Condition and improvement projects would slightly increase public surface parking along the Frontier Drive Extension. The addition of the area improvement projects would slightly increase the parking demand in the study area, but the on-site parking improvements and proximity of the projects to Metrorail should provide sufficient capacity for the extra trips generated from the development projects. Overall, with a slight increase in surface public parking, the No-build Condition would have direct, long-term, beneficial impacts to parking in the study area.

Truck Access

Truck access routes would not change under the No-build Condition, with the exception that some trucks may take the extended Frontier Drive route to access the Springfield site and surrounding developments once that road extension is completed.

Assessment of Significance

There would be direct, long-term, beneficial impacts to truck access due to the improved roadway connections under the No-build Condition.

No-build Condition Traffic Analysis

According to the Springfield Site Transportation Agreement, two primary sources were relied on to develop the future traffic volumes: an approved list of planned developments provided by FCDOT and background growth rates agreed among by all parties (VDOT, FCDOT, and the EIS project team). The Springfield Site Transportation Agreement is found in Appendix A.

The following section describes the process for analyzing traffic for the No-build Condition and the results of the analysis.

Background Growth

Refer to section 3.10.4.3 for a detailed description of background growth and how it was calculated. Based on the Springfield Site Transportation Agreement (Appendix A), the 0.58 percent annual growth rate was agreed to for use in the Springfield study area. To avoid double-counting, the planned developments already covered in the MWCOG model were not included in the No-build Condition.

The Springfield TIA (Appendix E) contains the details for determining the background growth rates for the interstate and non-interstate roadways in the study area. Table 7-32 shows the background growth rates by roadway facility. See Appendix E7 for further details on the No-build Condition background growth.

Trip Generation and Modal Split

Vehicle trips produced by three planned developments were calculated and included the Safford Automobile Dealership and the Springfield Metro Center II Phase development. In addition to the planned development trip generation, the future vehicle trip growth for the Franconia-Springfield Metro Station was forecasted to 2022.

Table 7-33 presents the planned development trip generation summary. Appendix E contains the Metrorail growth forecasted steps and a more detailed trip generation summary contained in the Springfield TIA.

SPRINGFIELD PARKING ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-build Condition: Direct, long-term, beneficial impacts.

SPRINGFIELD TRUCK ACCESS ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-build Condition: Direct, long-term, beneficial impacts.

Table 7-32: No-build Condition Background Roadway Growth Rates

Roadway	Annual Growth Rate	Eight-Year Growth
I-95/I-495/I-395	0.75%	6.16%
Non-Interstate Roadways	0.58%	4.74 %

Table 7-33: Planned Development Trip Generation

Project	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Safford Automobile Dealership						
TOTAL VEHICLE TRIPS	116	38	154	71	106	177
Springfield Metro Center II Phase I						
TOTAL VEHICLE TRIPS	223	30	254	40	196	235
Springfield Metro Center II Phase II						
TOTAL VEHICLE TRIPS	214	30	244	38	187	225
Franconia - Springfield Metro Station Background Growth						
TOTAL VEHICLE TRIPS	314	89	403	97	292	389

Table 7-34: Springfield Planned Development Trip Distribution

Origin/Destination	Safford Automobile Dealership	Springfield Metro Center II Phase I & II
I-95 North	1%	56% ^a
I-395 North	1%	
I-495 North	2%	
Commerce Street	4%	
Frontier Drive	1%	
Franconia Road eastbound	7%	
Old Keene Mill Road	9%	
Franconia-Springfield Parkway eastbound	7.5%	7.5%
Franconia-Springfield Parkway westbound	7.5%	7.5%
I-95 South	20%	29% ^b
Fairfax County Parkway eastbound	25%	
Fairfax County Parkway westbound	15%	
Total	100%	100%

^aRepresents all vehicle trips destined to the north of the property excluding Franconia-Springfield Parkway

^bRepresents all vehicle trips destined to the south of the property

Trip Distribution

Once the total number new vehicle trips were calculated through the trip generation process, the trips were systematically and logically distributed across the road network. This is typically a straightforward process, emulating the existing travel patterns on roadways. However, in this case, with new developments and new roadways introduced as part of the No-build Condition, the process required several additional steps to complete. These steps included:

1. Expand the existing volumes to cover the proposed future Franconia-Springfield Metro Station roadway network.
2. Shift the vehicle trips based on the opening of a new roadway connection (Frontier Drive Extension).
3. Add the planned development trips.
4. Add the Franconia-Springfield Metro Station trips.
5. Add the background growth rate trips.

The distribution of the Franconia-Springfield Metro Station-generated vehicle trips and shifted vehicle trips caused by Frontier Drive Extension on the proposed roadway network are contained in the Springfield TIA (Appendix E).

Planned Development Trip Distribution

The planned developments include the Safford Automobile Dealership and Springfield Metro Center II Phase I and II. The study followed the Safford Automobile Dealership Traffic Impact Study distribution pattern (Gorove Slade 2014). Because 25 percent of vehicle distribution was assigned to Loisdale Road north of Spring Mall Drive, the Springfield Town Center Traffic Impact Study retail distribution pattern was referenced to distribute 25 percent of vehicle trips across the remaining study area roads north of Spring Mall Drive in a consistent manner (Gorove Slade 2008).

The study distributed the Springfield Metro Center II project by using the Springfield Town Center Traffic Impact Study office distribution pattern (Gorove Slade 2008). Vehicle trips from these developments were only added to the study area along Frontier Drive Extension between Loisdale Road and Franconia-Springfield Parkway westbound on/off ramps. These vehicle trips fill a gap in the future vehicle trip network (Frontier Drive Extension) while the 0.58 percent background growth covers the Springfield Metro Center II project for the remaining study area network. Table 7-34 contains the distribution percentages for each planned development. Appendix E7 contains maps showing the distribution patterns for each planned development.

The distribution of future forecasted vehicle trips to and from the Franconia-Springfield Metro Station are contained in the Springfield TIA (Appendix E).

Once all the vehicle trips were properly shifted and the planned development growth applied, the vehicle background growth trips were applied. This consisted of applying a 0.58 annual growth factor to all the non-interstate roadways (including ramps) based on the volume after shifting existing vehicle trips due to the opening of the Frontier Drive Extension and applying a 0.75 annual growth factor to all the interstate roadways.

Complete No-build Condition

The planned developments, background growth, and planned roadway improvements were summed together to create complete No-build Condition vehicle volumes covering all study area intersections and expressway facilities. Figure 7-40 shows the total No-build Condition background AM and PM weekday peak turning movement volumes. Section 3.10.4.3 contains a description of the PHF and how it was used to provide a conservative traffic operations analysis.

No-build Condition Operations Analysis

Based on the Synchro™ signalized intersection analysis, most of the signalized study area intersections would operate at acceptable overall conditions during the morning and afternoon peak hours. However, the intersection of Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street (Intersection #21) would operate at unacceptable conditions during both the AM and PM peak hours.

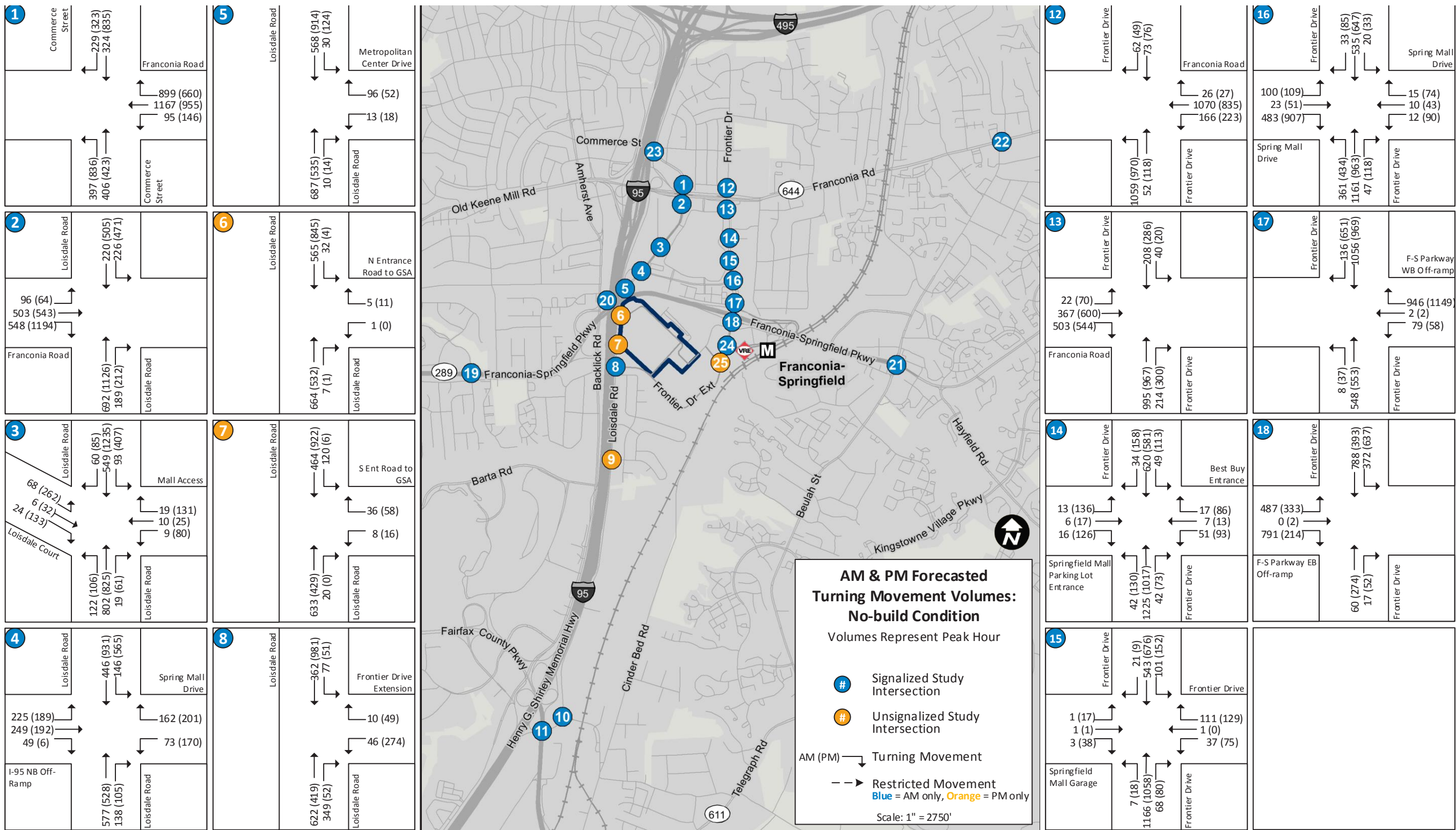
A total of 11 signalized intersections and 1 unsignalized intersection would experience an unacceptable conditions for one or more turning movements. Compared to the Existing Condition, the No-build Condition would have no change in the number of intersections failing during both the AM and PM peak hours. The Springfield TIA (Appendix E) contains a more detailed No-build Condition traffic operations analysis.

The overall intersection LOS grades for the No-build Condition are depicted in figure 7-41 for the AM and PM peak hours. Table 7-35 shows the results of the LOS capacity analysis and the intersection projected delay under the No-build Condition during the AM and PM peak hours.

**SPRINGFIELD TRAFFIC
ENVIRONMENTAL CONSEQUENCES
SUMMARY**

No-build Condition: Direct, long-term, adverse impacts to study area intersections.

Figure 7-40: Springfield No-build Condition AM and PM Weekday Peak Turning Movement Volumes



Note: Intersection #23 is analyzed only during the PM peak hour.

Figure 7-40: Springfield No-build Condition AM and PM Weekday Peak Turning Movement Volumes (continued)

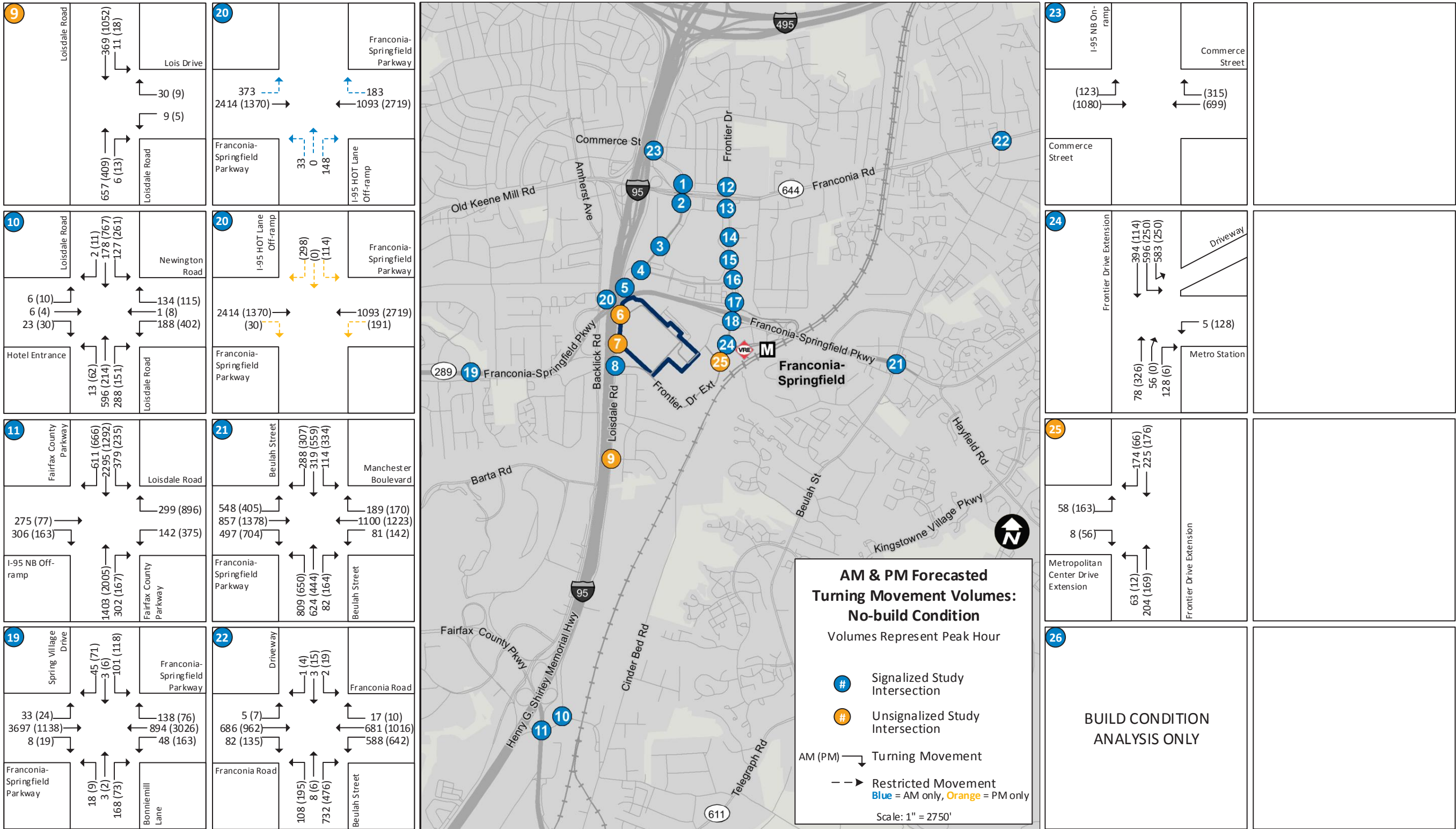


Table 7-35: Springfield No-build Condition Intersection AM and PM Peak Hour Operations Analysis

#	Intersection	AM Peak Hour Overall			PM Peak Hour Overall		
		Delay (sec/veh)	LOS	Check	Delay (sec/veh)	LOS	Check
1	Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)	24.0	C	Pass	31.1	C	Pass
2	Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)	35.7	D	Pass	32.1	C	Pass
3	Loisdale Road & Loisdale Court/Mall Access (Signalized)	9.1	A	Pass	21.9	C	Pass
4	Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)	32.9	C	Pass	23.7	C	Pass
5	Loisdale Road & Metropolitan Center Drive (Signalized)	6.7	A	Pass	4.1	A	Pass
6	Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)	0.3	-	Pass	0.1	-	Pass
7	Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC)	1.6	-	Pass	0.9	-	Pass
8	Loisdale Road & Frontier Drive Extension (Signalized)	9.2	A	Pass	23.8	C	Pass
9	Loisdale Road & Lois Drive (TWSC)	0.7	-	Pass	0.3	-	Pass
10	Loisdale Road & Hotel Entrance/Newington Road (Signalized)	16.7	B	Pass	31.6	C	Pass
11	Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)	35.7	D	Pass	37.7	D	Pass
12	Frontier Drive & Franconia Road (Westbound) (Signalized)	30.7	C	Pass	24.6	C	Pass
13	Frontier Drive & Franconia Road (Eastbound) (Signalized)	38.5	D	Pass	31.5	C	Pass
14	Frontier Drive & Best Buy/Springfield Mall Parking Lot Entrance (Signalized)	41.8	D	Pass	30.8	C	Pass
15	Frontier Drive & Home Depot/Springfield Mall Garage Entrance (SMGE) (Signalized)	37.3	D	Pass	19.8	B	Pass
16	Frontier Drive & Spring Mall Drive (Signalized)	22.8	C	Pass	38.4	D	Pass
17	Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)	31.3	C	Pass	15.5	B	Pass
18	Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)	47.6	D	Pass	32.1	C	Pass
19	Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)	46.8	D	Pass	27.6	C	Pass
20	Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized) ^a	17.5	B	Pass	15.8	B	Pass
21	Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)	84.1	F	Fail	96.9	F	Fail
22	Franconia Road & Beulah Street (Signalized)	39.9	D	Pass	51.1	D	Pass
23	I-95 NB On-ramp & Commerce Street (Signalized) ^b	-	-	-	2.8	A	Pass

#	Intersection	AM Peak Hour Overall			PM Peak Hour Overall		
		Delay (sec/veh)	LOS	Check	Delay (sec/veh)	LOS	Check
24	Frontier Drive Extension & Metro Station (Signalized)	16.4	B	Pass	18.7	B	Pass
25	Frontier Drive Extension & Metropolitan Center Drive Extension (TWSC)	2.1	-	Pass	4.7	-	Pass

Notes:

LOS = Level of Service

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

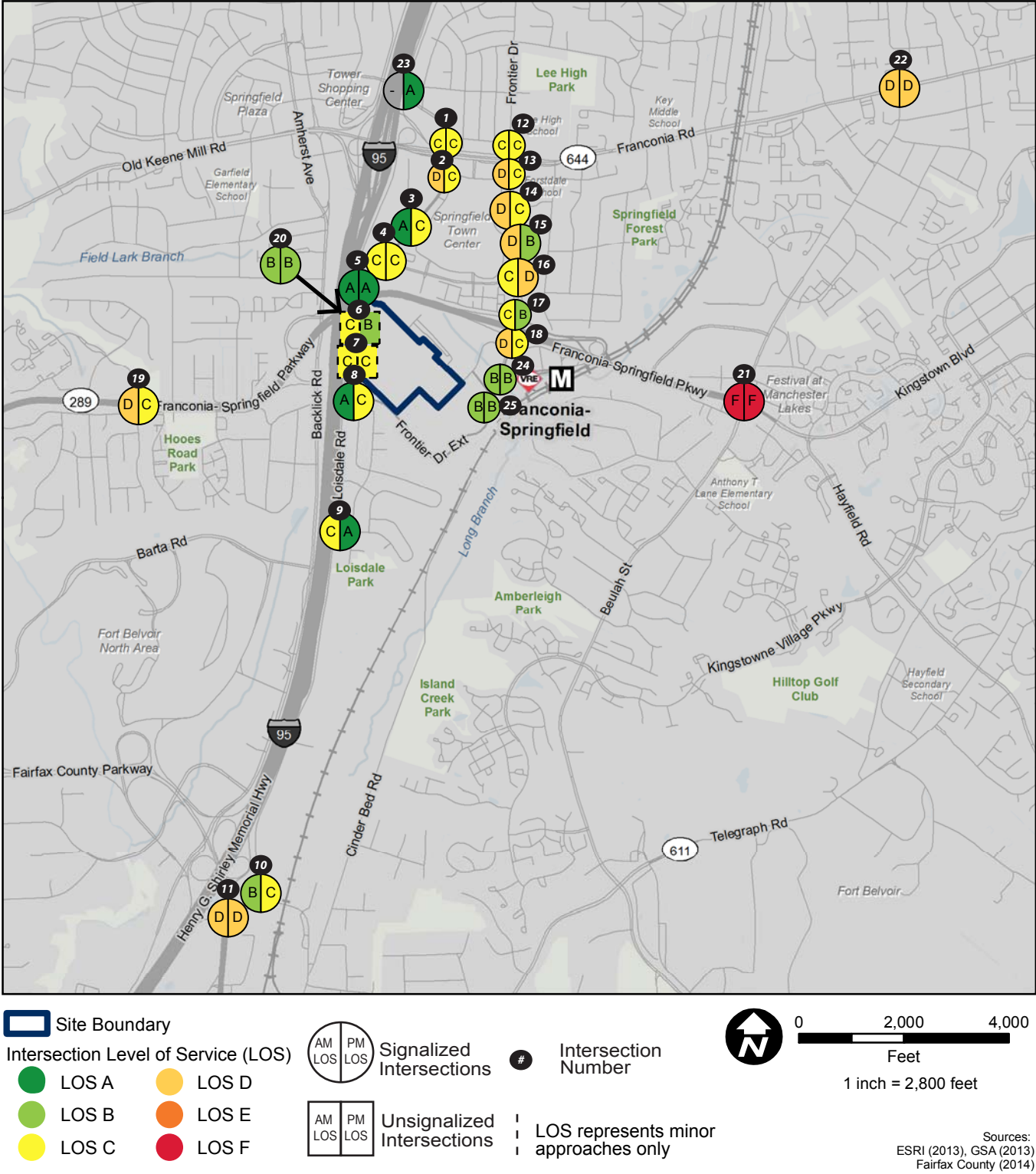
Delay is Measured in Seconds Per Vehicle.

Red cells denote intersections operating at unacceptable conditions.

^a Intersection would continue to operate with a different lane configuration during the AM and PM peak hours.

^b Intersection is not analyzed during the AM peak hour.

Figure 7-41: Springfield No-build Condition Intersection LOS for AM and PM Peak Hours



**SPRINGFIELD PEDESTRIAN
NETWORK ENVIRONMENTAL
CONSEQUENCES SUMMARY**

Build Condition: Direct, long-term, beneficial impacts.

**SPRINGFIELD BICYCLE NETWORK
ENVIRONMENTAL CONSEQUENCES
SUMMARY**

Build Condition: No measurable impacts.

No-build Condition Queuing Analysis

Based on the Synchro™ and SimTraffic™ analysis, 12 signalized intersections and one unsignalized intersection would experience queuing lengths that would exceed the available storage capacity. The remaining intersections in the study area would provide sufficient storage for the anticipated demand. Compared to the Existing Condition, the No-build Condition would have failing queues for three more intersections during the AM peak hour and four less intersections during the PM peak hour. The Springfield TIA (Appendix E) contains a more detailed No-build Condition traffic queuing analysis.

Summary of Traffic Analysis: No-build Condition

Overall, there would be impacts during the AM and PM peak hour at the Franconia-Springfield Parkway/ Manchester Boulevard and Beulah Street intersection (Intersection #21) resulting in direct, long-term, adverse impacts.

**7.2.9.2 Build Condition
(FBI HQ Consolidation)**

This section introduces the Build Condition for the Springfield site and summarizes the potential impact to the pedestrian network, bicycle network, public transit system, parking conditions, truck access, and traffic operations from the consolidation of the FBI HQ on the Springfield site.

Build Condition Pedestrian Network

Under the Build Condition, sidewalk improvements along the eastern corner of the Springfield site would be built to connect the on-site sidewalks and pedestrian access gate area to the off-site pedestrian network. Because the roadways adjacent to the Springfield site already have sidewalks on at least one side of the road, or would have sidewalks as roadways are constructed for the No-build Condition (e.g., Frontier Drive Extension and Metropolitan Center Drive Extension), only localized pedestrian improvements are anticipated at the locations of the remaining Entry Control Facilities (ECFs) to provide ADA compliance and pedestrian access, as needed. Within the site,

multiple pedestrian pathways would provide access to the Main Building and between elements on the site; the location of these pedestrian accommodations would be determined in the final site design process.

Based on the anticipated mode split percentages including 3 percent walk, 37 percent transit, and 16 percent bus, a large number of pedestrians would access the Springfield site via the surrounding pedestrian network from nearby transit stops and residential areas. The large increase in pedestrians would be due to the increased employment density anticipated at the Springfield site and because the Springfield site is within a 0.5-mile walking distance of several transit options. Also, reduced parking was designed per NCPC guidance to encourage employees to access the site via transit. It is expected that most transit riders would follow sidewalks from the Franconia-Springfield Metro Station to the pedestrian gate at the eastern edge of the Springfield site. These sidewalks either currently exist, would be built with future roadways planned in the No-build Condition, or would be built locally around the Springfield East ECF as part of the Build Condition to connect to the pedestrian network.

Therefore, due to the large increase in pedestrians expected to access the site on foot via the pedestrian network, the Build Condition as planned would have direct, long-term, beneficial impacts to the pedestrian network. The pedestrian impacts would overall be beneficial, rather than adverse, because the sidewalks would be used more often, with overall increased use of the otherwise underused complete streets infrastructure. The sidewalk improvements at the East ECF would reduce barriers to accessing the site, and the increase in pedestrians using transit would improve overall sustainability. Under the Build Condition there could be direct, short-term, adverse impacts to the pedestrian network caused by construction vehicles crossing the sidewalk and pedestrian crosswalks and intermittent sidewalk closures.

Build Condition Bicycle Network

As noted for the No-build Condition (section 7.2.11.1), the Fairfax County Bicycle Master Plan (Fairfax County 2014d) recommends new bicycle lanes on several roadways within the study area. The only bicycle improvements that are known to be funded and therefore would be complete by 2022 as part of the No-build Condition would be the bicycle lanes on Fairfax Drive Extension, covered bicycle storage at the Franconia-Springfield Metro Station and VRE Station, and pedestrian and bicycle improvements between Northern Virginia Community College and the Metrorail (FCDOT 2014b). No off-site bicycle improvements are planned as part of the Springfield Build Condition.

With the planned Frontier Drive Extension (currently Springfield Center Drive), bicycle lanes would be directly adjacent to the proposed facility. The overall bicycle mode split to the site is projected to be 2 percent, resulting in approximately 226 bicycle roundtrips daily. It is assumed that there would be bicycle and shower facilities on-site to encourage the use of the bicycle mode of travel.

The increase in bicycle trips from the Springfield Build Condition would increase overall bicycle volumes in the study area. Given the existing amount of bicycle facilities within the study area and those facilities that are proposed, these additional trips would likely be able to be accommodated without any impacts to pedestrian or vehicle traffic. Therefore, the Springfield Build Condition would have no measurable direct, long-term impacts to the bicycle network. Also under the Springfield Build Condition, there could be direct, short-term, adverse impacts to the bicycle network on Frontier Drive Extension and Loisdale Road caused by construction vehicles blocking the sidewalks or bike lanes and intermittent closures.

Build Condition Public Transit

The following sections describe the Springfield Build Condition for the Metrorail and bus modes within the Springfield study area. It is anticipated that there would be an increase in people commuting to the site via commuter rail, commuter bus, shuttle, or slugging given the overall increase in total trips in the Build Condition. Also, the projected use of shuttles for future FBI employees is discussed in a later section.

Projected Trips

Section 3.10.4.2 details the basis of the Springfield Build Condition trip generation calculation

Metrorail Analysis

The Springfield Build Condition passenger trips were assigned to Metrorail peak hours using the Metrorail/Commuter Rail mode split of 37 percent, and a further reduction of AM peak trips out of the site and PM peak trips into the site, to account for passengers that could use VRE instead of Metrorail. VRE service only operates to Franconia-Springfield Station in the northbound direction during the AM peak and in the southbound direction during the PM peak. The VRE passenger trip reduction was calculated using the current proportion of daily passengers that use VRE instead of Metrorail to and from Franconia-Springfield Station, as shown in table 7-36.

With a Metrorail mode split of 37 percent and the VRE reduction (minus nine percent in the AM peak hour and minus 11 percent in the PM peak hour), a total of 1,226 additional AM peak hour passenger trips and 1,134 additional PM peak hour passenger trips are projected. Table 7-37 summarizes the additional Metrorail trips associated with the Springfield Build Condition.

The additional peak hour Metrorail passenger trips were further disaggregated into AM and PM peak 15-minute periods using existing PHFs at Franconia-Springfield Metro Station. Overall, this would result in an additional 310 passenger trips during the AM peak 15-minute period and an additional 329 passenger trips during the PM peak 15-minute period, as summarized in table 7-37.

Overall, the Springfield Build Condition would result in an additional 4,223 weekday entries at the Franconia-Springfield Metro Station, bringing the weekday station entry total to 13,301 passengers (see table 7-38). Average weekday exits would theoretically be the same or similar to the average weekday entries.

Metrorail Passenger Loads

Refer to section 3.10.4.3 for a detailed explanation of how Metrorail passenger loads were calculated. Because Franconia-Springfield is a terminal station, passenger loads are equal to the total number of exiting passengers per train in the outbound direction (trains ending at the station) or the total number of entering passengers per train in the inbound direction (trains beginning at the station). Outbound exiting passengers during the PM peak period were higher than inbound entering passengers during the AM peak period at the station; therefore, PM peak 15-minute exits were used for this analysis.

Table 7-36: Springfield VRE/Franconia-Springfield Metrorail Station Ridership Proportions

Metro Station	Northbound Entries		Southbound Exits	
	Total	Percent of Total	Total	Percent of Total
VRE Franconia-Springfield Station ^a	769	9%	1,012	11%
Franconia-Springfield Metrorail Station	7,566	91%	7,801	89%
Total	8,335	100%	8,813	100%

^aThese figures represent the percentage of passengers who would use Metrorail instead of VRE, and constitute the “VRE Reduction” previously referenced.
Source: Springfield Site Transportation Agreement (Appendix A)

Table 7-37: Springfield Build Condition Franconia-Springfield Additional Peak 15-Minute Metrorail Passenger Trips

Employees	Time Period	IN	OUT	TOTAL	Peak Hour Factor	Time Period	IN	OUT	TOTAL
11,055	AM Peak Hour	1,116	76	1,192	25%	AM Peak 15-Minute	282	19	301
	PM Peak Hour	49	1,057	1,106	29%	PM Peak 15-Minute	14	307	321
Briefing Center	Time Period	IN	OUT	TOTAL	Peak Hour Factor	Time Period	IN	OUT	TOTAL
250	AM Peak Hour	34	-	34	25%	AM Peak 15-Minute	9	-	9
	PM Peak Hour	-	27	27	29%	PM Peak 15-Minute	-	8	8
Total People	Time Period				Peak Hour Factor	Time Period	Exits	Entries	TOTAL
11,305	AM Peak Hour	1,149	76	1,226	25%	AM Peak 15-Minute	290	19	310
	PM Peak Hour	49	1,084	1,134	29%	PM Peak 15-Minute	14	315	329

Source: Springfield Site Transportation Agreement (Appendix A); WMATA (2014b); WMATA (2014m)

Table 7-38: Weekday 2022 Projected Metrorail Ridership at Franconia-Springfield Station

Metro Station	Average Weekday Entries					
	2014	2022 Background Growth	2022 Development Projects	2022 Total No-build	2022 Additional Build Trips	2022 Total Build ConditionTrips
Franconia-Springfield	7,566	8,915	163	9,078	4,223	13,301

Source: WMATA (2014b); WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Table 7-39: Springfield Build Condition Peak Metrorail Passenger Loads

Franconia - Springfield	Unit
2014 Maximum 15-minute Passengers (outbound exiting passengers during PM peak period)	486
2022 Passengers with Background Growth	572
2022 Passengers with Development Projects	8
2022 Total No-build Passengers	580
2022 Minimum Trains ^a	2
2022 Train Cars ^b	14
2022 No-build Passengers Per Car	41
2022 Springfield Build Additional Passengers	14
2022 Total Springfield Build Passengers	595
2022 Total Springfield Build Passengers Per Car	43

^a A 6-minute headway equates to 2.5 trains every 15 minutes. This figure was rounded down to 2 minutes to provide the most conservative load estimate.

^b Assuming one 8-car train (Blue line) and one 6-car train at Franconia-Springfield.

Source: WMATA (2014X); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

SPRINGFIELD PUBLIC TRANSIT ENVIRONMENTAL CONSEQUENCES SUMMARY

Build Condition: No measurable impacts to public transit capacity, and direct, short- and long-term, adverse impacts to bus operations.

Table 7-40: Springfield Build Condition Weekday Peak 15-Minute Entering Period Ridership

Metro Station	Time	2014		2022 No-build		2022 Build	
		Entries	Exits	Entries	Exits	Entries	Exits
Franconia- Springfield	7:30 AM – 7:45 AM	441	41	530	89	549	380

Source: WMATA (2014b); WMATA (2014I); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Table 7-41: Springfield Build Condition Additional Peak Hour Local Bus Passenger Trips

Employees	Time Period	Proportion of Daily Total	Local Bus Mode Split	TOTAL LOCAL BUS TRIPS
11,055	AM Peak Hour	29%	6.0%	192
	PM Peak Hour	26.9%	6.0%	178
Briefing Center	Time Period	Proportion of Daily Total	Local Bus Mode Split	TOTAL LOCAL BUS TRIPS
250	AM Peak Hour	36%	6.0%	5
	PM Peak Hour	29%	6.0%	4
Total People	Time Period			TOTAL LOCAL BUS TRIPS
11,305	AM Peak Hour			198
	PM Peak Hour			183

Source: Springfield Site Transportation Agreement (Appendix A)

Table 7-42: Springfield Build Condition Bus Capacity Analysis

Measure	2014		2022 No-build		2022 Build	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Total Volume	848	846	1,010	1,006	1,208	1,189
Total Capacity	2,843	2,824	2,843	2,824	2,843	2,824
Volume to Capacity Ratio (V/C)	0.30	0.30	0.36	0.36	0.42	0.42

Source: Springfield Site Transportation Agreement (Appendix A); Springfield Site Trip Generation Summary (see Traffic Analysis section) (2015); WMATA (2014a); WMATA (2014f); MWCOG (2015).

Projected passenger loads of 43 passengers under the Springfield Build Condition as this station is well below the 100 passenger per car, and therefore would be considered acceptable. Table 7-39 summarizes passenger loads per car under the Springfield Build Condition using PM peak 15-minute exits.

Station Capacity Analysis

Refer to section 3.10.4.3 for a detailed description of how the station capacity was analyzed. The Build Condition passenger peak 15-minute would continue to occur during the AM at 7:30 AM. Table 7-40 summarizes ridership during this period.

Overall, vertical elements, faregate aisles, and fare vending machines at the station are projected to operate within capacity, or below a v/c of 0.7. Additionally, platform peak pedestrian LOS (based on the available spacing between passengers) on the busiest platform sections are projected to be at the acceptable LOS B. Further details on the station capacity analysis are found in Springfield TIA (Appendix E).

Bus Analysis

The additional local bus trips associated with the Springfield Build Condition are summarized in table 7-41. At a local bus mode split of 6.0 percent, approximately 198 additional AM peak hour bus passenger trips and 183 additional PM peak hour bus passenger trips are projected in the study area.

The additional peak hour bus passenger trips associated with the Springfield Build Condition were added to the peak hour bus volumes calculated for the study area in the 2022 No-build Condition. The trips were added proportionally to each route within the study area based on No-build Condition ridership. For this analysis, it was assumed that there would be no major changes in bus service in the study area by 2022.

Overall, AM peak hour Springfield Build Condition bus volumes are projected to total 1,208 passengers, and PM peak hour volumes are projected to total 1,189 passengers. These totals are both below the overall capacity of services, as summarized in table 7-42, meaning the additional passenger trips projected could be adequately handled by current service levels. No individual routes are projected to experience capacity issues either. Appendix E has further details on the bus capacity analysis.

Summary of Transit Analysis

The increase in public transit trips from the Springfield Build Condition would have the following impacts to transit:

- The overall capacity of bus services in the study area would accommodate the projected ridership, and no individual routes would experience capacity issues.
- Metrorail car passenger loads through the study area are projected to be at acceptable levels.
- Overall, Metrorail vertical elements, faregate aisles, and fare vending machines at the Franconia-Springfield Metro Station are projected to operate below capacity.
- Metrorail platform peak pedestrian LOS (based on the available spacing between passengers) on the busiest platform sections are projected to be at the acceptable LOS B at the Franconia-Springfield Metro Station.
- Platform and station evacuation times would increase slightly over the No-build Condition. Platform evacuation times would continue to meet NFPA 130 standards, and station evacuation times would continue to exceed NFPA 130 standards.

Therefore, the Springfield Build Condition would have no measurable direct, long-term impacts to public transit capacity. In addition, bus operations along one bus route would have direct, long-term, adverse impacts caused by the potential traffic delays forecasted along Loisdale Road (see the Springfield TIA, section 5.7, Traffic Analysis). The same bus line that regularly services Springfield Center Drive and Loisdale Road would encounter direct, short-term, adverse impacts caused by construction vehicles blocking some or all of the lanes and intermittent road closures.

Build Condition Parking

Under the Build Condition, employee parking garages would be located to the north and east of the Main Building Developable Area along the northeastern site boundary, adjacent to Metropolitan Center Drive. Given the distance to the nearest transit station, and in accordance with NCPC parking policy, a parking ratio of one parking space for every three employees would be maintained, equating to approximately 3,600 spots. In the conceptual site layout analyzed in the EIS (see section 2.4.3), these spaces would be accommodated in two, 8-story parking structures. The final number and layout of the parking structures to accommodate the required employee and fleet vehicle parking would be determined during the design process. Up to 145 visitor parking spaces would be provided near the VC.

While all employee and visitor parking is envisioned to be accommodated on-site, it is likely that there would be more employee demand for driving than there are parking spaces due to the less than 1:1 ratio of parking spaces to employees (not all employees would have a parking spot) as recommended by NCPC policies. As an “end-of-the-line” station, Metrorail may not seem like the best travel option from other sides of the city. Therefore, some employees may try to park on local streets (Frontier Drive Extension would have on-street, short-term, metered parking) or park on local residential streets that do not have parking restrictions. Still others may choose to pay to park in local area parking garages. Development and implementation of a Transportation Management Plan (TMP), which includes Transportation Demand Management (TDM) measures that would encourage employees to use

transit and discourage employees from driving and parking off-site, would address these issues and reduce any adverse parking impacts anticipated at the Springfield site. With implementation, monitoring, and enforcement of a TMP, and revisions as needed, the Build Condition would result in no measurable direct, long-term impacts to local area competition for parking. Assuming all construction equipment and employee parking areas would be contained to the Springfield site, there would be no measurable direct, short-term impacts to parking in the study area during the construction period.

Truck Access

Truck access for the Springfield site would occur at the northwestern corner of the site off of Loisdale Road, as shown in section 2.4.3. Trucks would only be permitted to enter and exit during non-peak hours; therefore, peak traffic hours on adjacent roadways would not be impacted. Truck entrance and exit locations and restricted hours would be noted at entrance locations and communicated to those services that would provide regular truck delivery to the site. It should be noted that the location of the truck access off of Loisdale Road was designed to prevent trucks from using local neighborhood roads to access the site.

Therefore, under the Build Condition, there would be no measurable direct, long-term impacts to truck access given communication of truck access regulations. Assuming the Springfield site would have access entrances and exits assigned for construction equipment and general trucks during the construction period, there would be no measurable direct, short-term impacts to truck access.

Build Condition Traffic Analysis

Refer to section 3.10.4.2 for a detailed description of the process the study followed to project future traffic volumes through three primary assumptions: trip generation, modal split, and trip distribution, followed by a discussion of the impacts of the proposed alternative.

SPRINGFIELD PARKING
ENVIRONMENTAL CONSEQUENCES
SUMMARY

Build Condition: No measurable impacts.

SPRINGFIELD TRUCK ACCESS
ENVIRONMENTAL CONSEQUENCES
SUMMARY

Build Condition: No measurable impacts.

Table 7-43: Springfield AM Peak Hour Vehicle Trips

Calculated Steps	AM Peak Hour (7:30 AM - 8:30 AM)									
	FBI Employees				Briefing Center ^a					
	Inbound		Outbound		Inbound		Outbound		TOTAL	
	SOV	HOV	SOV	HOV	SOV	HOV	SOV	HOV	In-bound	Out-bound
Employees or Seats	11,055				250					
Trip Generation	29%				36%					
Inbound/Outbound Split	93%		7%		100%		0%			
Modal Split	30.6%	11.0%	30.6%	11.0%	30.6%	11.0%	30.6%	11.0%		
Total Trips w/o HOV adjustment	912	328	69	25	28	10	0	0		
HOV Vehicle Occupancy		4		4		4		4		
Total Trips	912	82	69	6	28	2	0	0	1,024	75

^a Assumes a 500-seat facility where external trips represent 50% of attendees

Table 7-44: Springfield PM Peak Hour Vehicle Trips

Calculated Steps	PM Peak Hour (5:00 PM - 6:00 PM)									
	FBI Employees				Briefing Center ^a					
	Inbound		Outbound		Inbound		Outbound		TOTAL	
	SOV	HOV	SOV	HOV	SOV	HOV	SOV	HOV	In-bound	Out-bound
Employees or Seats	11,055				250					
Trip Generation	26.9%				29%					
Inbound/Outbound Split	5%		95%		0%		100%			
Modal Split	30.6%	11.0%	30.6%	11.0%	30.6%	11.0%	30.6%	11.0%		
Total Trips w/o HOV adjustment	45	16	864	311	0	0	22	8		
HOV Vehicle Occupancy		4		4		4		4		
Total Trips	45	4	864	78	0	0	22	2	49	966

^a Assumes a 500-seat facility where external trips represent 50% of attendees

Total Vehicle Trips

Based on the trip generation rates combined with the SOV and HOV modal split and persons per carpool, the total vehicle trips are forecasted to be 1,024 inbound and 75 outbound during the AM peak hour and 49 inbound and 966 outbound during the PM peak hour.

Tables 7-43 and 7-44 summarize the vehicle trips based on the trip generation and the mode split.

Trip Distribution

The process for determining trip distribution is detailed in section 3.10.4.2. Table 7-45 shows the blended trip distribution percentages to/from each origin/destination. Figure 7-42 contains the Springfield site Build Condition trip distribution.

Development of Build Condition

Refer to section 3.10.4.3 for a description of how the Build Condition was developed for traffic analysis. It is important to note that the Build Condition includes GSA trips removed from the existing GSA site as well as the addition of the forecasted FBI vehicle trips and No-build vehicle trips. A diagram of Build Condition lane geometry and additional diagrams showing the Build Condition trip generation can be found in the Springfield TIA (Appendix E).

Build Condition Operations Analysis

Based on the Synchro™ signalized intersection analysis, the majority of study intersections would operate at acceptable conditions during the morning and afternoon peak hours. However, the following signalized intersections in the study area would operate with overall unacceptable conditions:

- Frontier Drive and Franconia-Springfield Parkway Westbound (Intersection #17) during the AM peak hour
- Frontier Drive and Franconia-Springfield Parkway Eastbound (Intersection #18) during the AM peak hour
- Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street intersection #21) during the AM and PM peak hours

A total of 15 signalized intersections and 1 unsignalized intersection would experience unacceptable conditions for one or more turning movements. Compared to the No-build Condition, the Build Condition would have two more intersections failing during the AM peak hour and there would no change in the number of intersections failing during the PM peak hour. The Springfield TIA (Appendix E) contains a more detailed Build Condition traffic operations analysis.

The overall intersection LOS grades for the Build Condition are shown in figure 7-43 for the AM and PM peak hours. Table 7-46 shows the results of the LOS capacity analysis and the intersection projected delay under the Build Condition conditions during the AM and PM peak hours.

Build Condition Queuing Analysis

Based on the Synchro™ and SimTraffic™ analysis, 17 signalized intersections would experience queuing lengths that would exceed the available storage capacity. The remaining intersections in the study area would provide sufficient storage for the anticipated demand. Compared to the No-build Condition, the Build Condition would have three more intersections with failing queues during the AM peak hour and would have eight more intersections with failing queues during the PM peak hour. The Springfield TIA (Appendix E) contains a more detailed Build Condition traffic queuing analysis.

**SPRINGFIELD TRAFFIC
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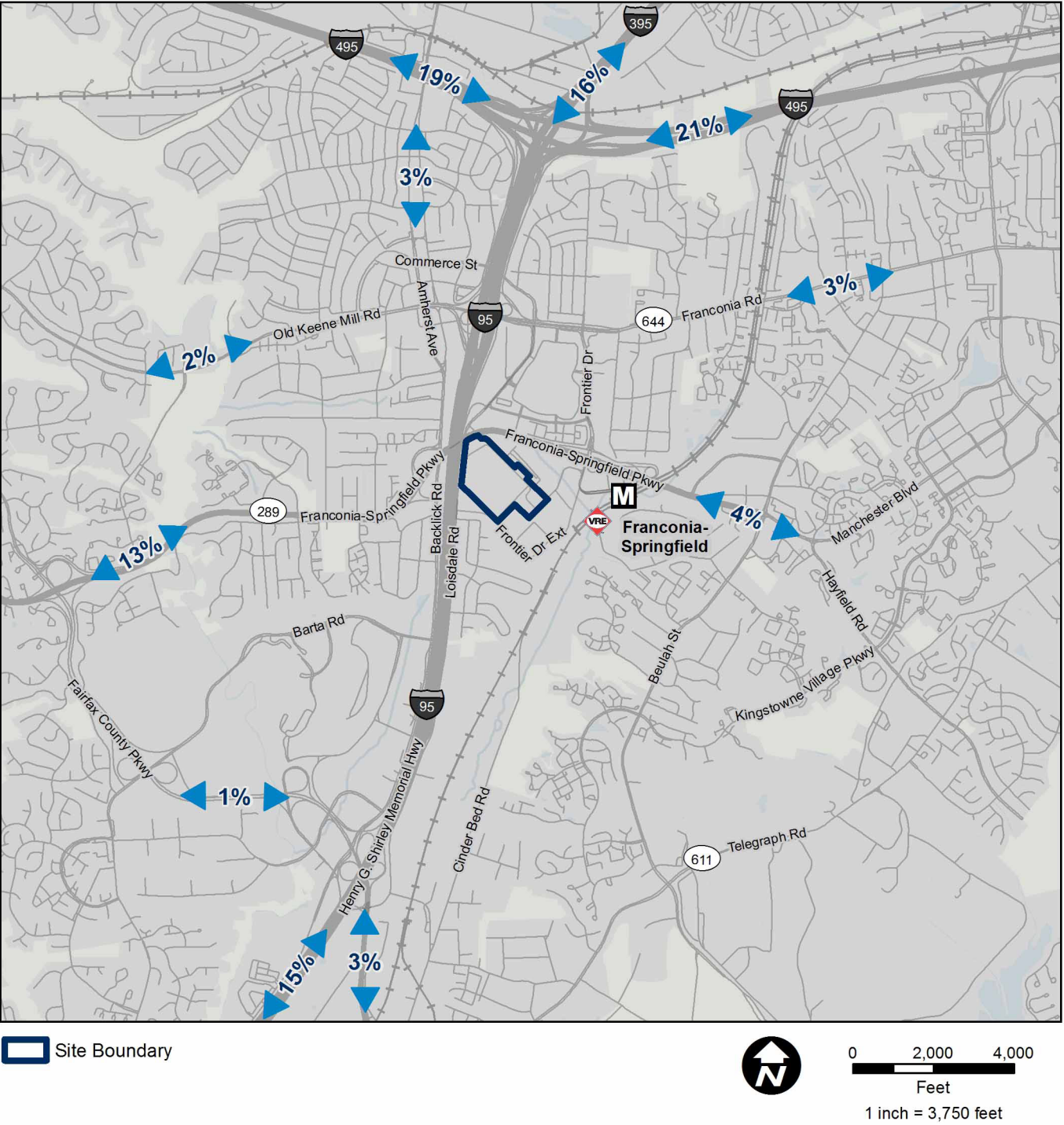


Build Condition: Direct, long-term, major adverse impacts to corridors in the study area; direct, long-term, adverse impacts to isolated intersections; and direct, short-term, adverse impacts during the construction period.

Table 7-45: Springfield Build Condition Trip Distribution Summary

Roadway and Direction	Percentages		AM Trips		PM Trips	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
I-95/I-495 EB	21.0%	21.0%	215	16	10	203
I-95 SB	15.0%	15.0%	154	11	7	145
I-495 NB	19.0%	19.0%	195	14	9	184
I-395 NB	16.0%	16.0%	164	12	8	155
Backlick Road NB	3.0%	3.0%	31	2	1	29
Old Keene Mill Road WB	2.0%	2.0%	20	2	1	19
Franconia Road EB	3.0%	3.0%	31	2	1	29
Franconia Springfield Parkway WB	13.0%	13.0%	133	10	6	126
Franconia Springfield Parkway EB	4.0%	4.0%	41	3	2	39
Fairfax County Parkway WB	1.0%	1.0%	10	1	0	10
Fairfax County Parkway EB	3.0%	3.0%	31	2	1	29
Total	100.0%	100.0%	1,024	75	49	966

Figure 7-42: Springfield Build Condition Trip Distribution



Sources:
ESRI (2013), GSA (2013)
Fairfax County (2014)

Table 7-46: Springfield Build Condition Intersection AM and PM Peak Hour Operations Analysis

#	Intersection	No-build Condition						Build Condition					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check
1	Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)												
		24.0	C	Pass	31.1	C	Pass	23.9	C	Pass	30.6	C	Pass
2	Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)												
		35.7	D	Pass	32.1	C	Pass	34.9	C	Pass	42.3	D	Pass
3	Loisdale Road & Loisdale Court/Mall Access (Signalized)												
		9.1	A	Pass	21.9	C	Pass	8.8	A	Pass	23.5	C	Pass
4	Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)												
		32.9	C	Pass	23.7	C	Pass	33.9	C	Pass	26.5	C	Pass
5	Loisdale Road & Metropolitan Center Drive (Signalized)												
		6.7	A	Pass	4.1	A	Pass	6.0	A	Pass	4.2	A	Pass
6	Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)												
		0.3	-	Pass	0.1	-	Pass	0.1	-	Pass	11.4	-	Pass
7	Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC) ^a												
		1.6	-	Pass	0.9	-	Pass	-	-	-	-	-	-
8	Loisdale Road & Frontier Drive Extension (Signalized)												
		9.2	A	Pass	23.8	C	Pass	43.2	D	Pass	53.9	D	Pass
9	Loisdale Road & Lois Drive (TWSC)												
		0.7	-	Pass	0.3	D	Pass	0.7	-	Pass	0.3	-	Pass
10	Loisdale Road & Hotel Entrance/Newington Road (Signalized)												
		16.7	B	Pass	31.6	C	Pass	16.8	B	Pass	32.6	C	Pass
11	Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)												
		35.7	D	Pass	37.7	D	Pass	35.7	D	Pass	39.9	D	Pass
12	Frontier Drive & Franconia Road (Westbound) (Signalized)												
		30.7	C	Pass	24.6	C	Pass	31.5	C	Pass	29.4	C	Pass
13	Frontier Drive & Franconia Road (Eastbound) (Signalized)												
		38.5	D	Pass	31.5	C	Pass	34.5	C	Pass	62.3	E	Pass
14	Frontier Drive & Best Buy/Springfield Mall Parking Lot Entrance (Signalized)												
		41.8	D	Pass	30.8	C	Pass	44.6	D	Pass	26.9	C	Pass
15	Frontier Drive & Home Depot/Springfield Mall Garage Entrance (SMGE) (Signalized)												
		37.3	D	Pass	19.8	B	Pass	38.0	D	Pass	17.4	B	Pass
16	Frontier Drive & Spring Mall Drive (Signalized)												
		22.8	C	Pass	38.4	D	Pass	21.0	C	Pass	37.0	D	Pass
17	Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)												
		31.3	C	Pass	15.5	B	Pass	167.4	F	Fail	20.1	C	Pass
18	Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)												
		47.6	D	Pass	32.1	C	Pass	122.3	F	Fail	33.2	C	Pass

Table 7-46: Springfield Build Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

#	Intersection	No-build Condition						Build Condition					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check
19	Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)												
		46.8	D	Pass	27.6	C	Pass	53.4	D	Pass	28.7	C	Pass
20	Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized) ^b												
		17.5	B	Pass	15.8	B	Pass	18.0	B	Pass	15.9	B	Pass
21	Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)												
		84.1	F	Fail	96.9	F	Fail	85.6	F	Fail	98.1	F	Fail
22	Franconia Road & Beulah Street (Signalized)												
		39.9	D	Pass	51.1	D	Pass	39.6	D	Pass	52.0	D	Pass
23	I-95 NB On-ramp & Commerce Street (Signalized) ^c												
		-	-	-	2.8	A	Pass	-	-	-	3.1	A	Pass
24	Frontier Drive Extension & Metro Station (Signalized)												
		16.4	B	Pass	18.7	B	Pass	16.1	B	Pass	26.4	C	Pass
25	Frontier Drive Extension & Metropolitan Center Drive Extension ^d												
		2.1	-	Pass	4.7	-	Pass	5.8	A	Pass	10.7	B	Pass
26	Frontier Drive Extension & Site South Access (Signalized)												
		-	-	-	-	-	-	5.6	A	Pass	9.2	A	Pass

Notes:

LOS = Level of Service

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

Delay is Measured in Seconds Per Vehicle.

Red cells denote intersections operating at unacceptable conditions.

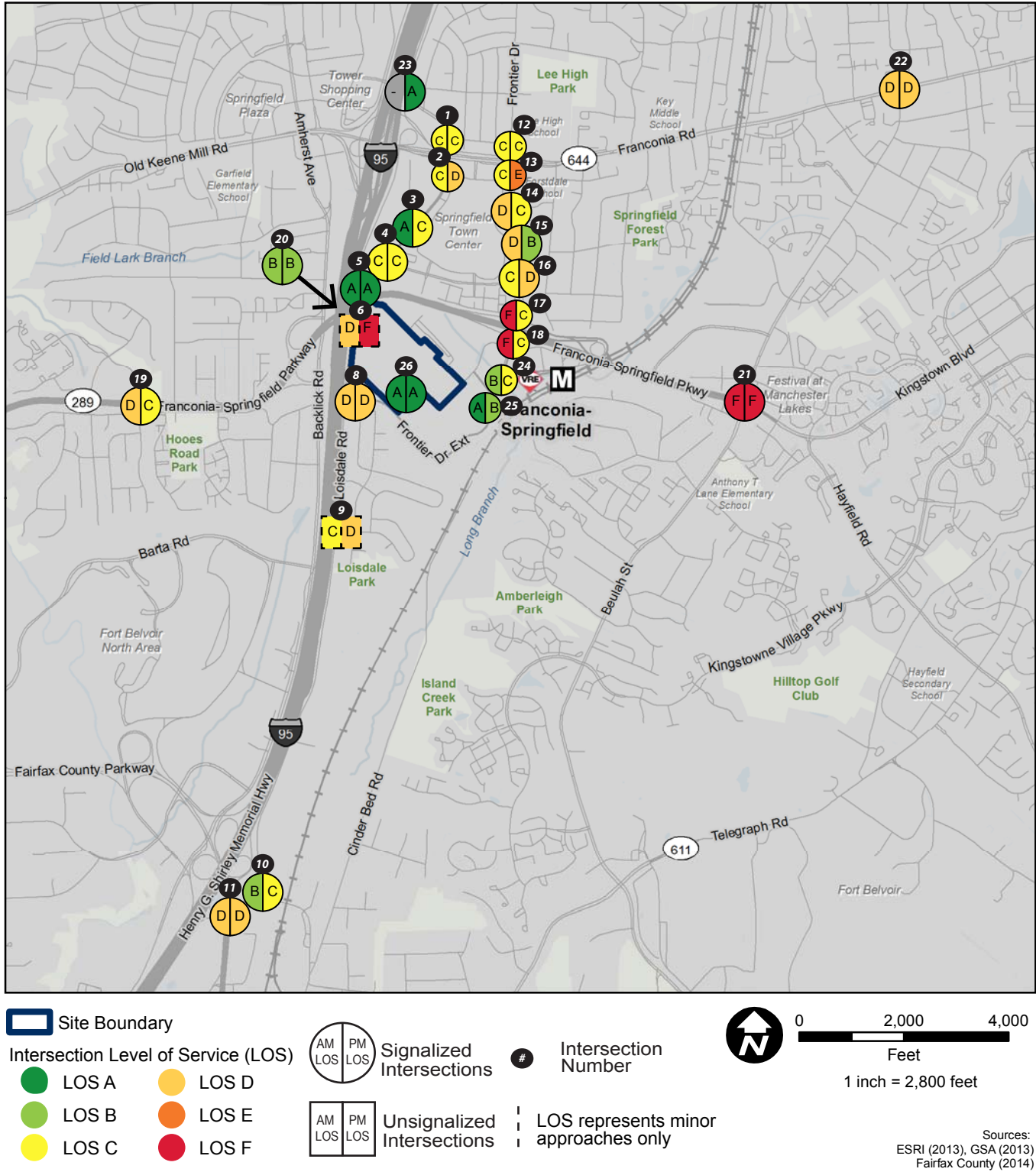
^a Intersection #7 would be removed for the Build Condition.

^b Intersection would continue to operate with a different lane configuration during the AM and PM peak hours.

^c Intersection is not analyzed during the AM peak hour.

^d Intersection would operate as a TWSC intersection under the No-build Condition and signalized under the Build Condition.

Figure 7-43: Springfield Build Condition Intersection LOS for AM and PM Peak Hours



Summary of Traffic Analysis: Build Condition

Overall, the AM peak hour would experience corridor-based delays along Frontier Drive in the southbound direction beginning at Franconia-Springfield Parkway Westbound and extending to Franconia Road. A similar condition would occur during the PM peak hour along Frontier Drive beginning at Franconia Road and extending to Franconia-Springfield Parkway Westbound. A second corridor-based delay would occur along Loisdale Road beginning at Franconia Road and extending back to Spring Mall Drive. Together these conditions would result in direct, long-term, major adverse impacts to study area corridors. In addition there would be isolated intersection impacts during the AM peak hour at the Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street intersection and during the PM peak hour at the Loisdale Road and Frontier Drive Extension intersection. Together these would result in direct, long-term, adverse impacts due to the isolated nature of the impacts.

Because the intersection of Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street is forecasted to be failing during the No-build Condition, adding construction-related trips along this route caused by trucks, employees, and equipment would have isolated impacts. There would also be additional short-term truck traffic impacts as a result of the demolition of the existing buildings on the GSA-owned parcel requiring dump trucks to haul the debris away on a continual basis until the parcel is clear of existing building materials. These conditions would result in direct, short-term, adverse construction impacts.

7.2.9.3 Springfield Build with Mitigation Condition

To reduce impacts on the transportation system caused as a result of the Proposed Action—consolidation of the FBI headquarters at the Springfield site, mitigation measures are recommended in this section for each mode of transportation analyzed. Overall, the Springfield site requires mitigation to reduce direct impacts of the Proposed Action.

The following transportation resources do not require any mitigation under the Greenbelt Alternative: truck access.

Build with Mitigation Condition Pedestrian Network

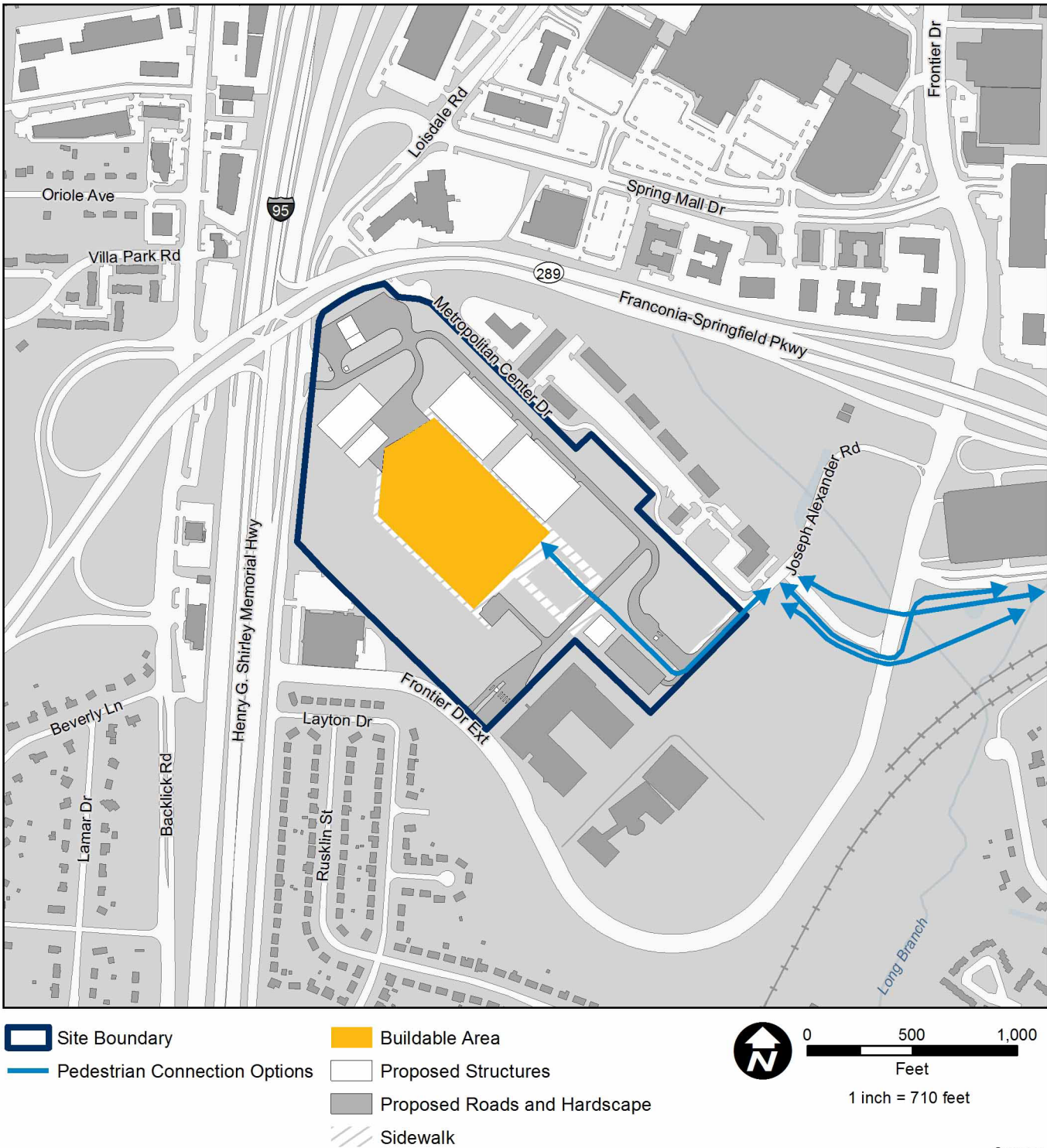
The Franconia-Springfield Metro Station is situated approximately 0.5 mile northeast from the conceptual location of the headquarters building. Providing the best pedestrian connections between the building and the station would be important to encourage transit use, reduce traffic congestion, improve air quality, and provide an alternative to using a shuttle on a daily basis, especially on days with pedestrian-friendly weather.

It is assumed that the Metropolitan Center Drive extension connecting to the Frontier Drive Extension, as well as the Frontier Drive Extension itself, would have a complete streets design with sidewalks on both sides, clearly marked crosswalks, and possibly one or two well-placed mid-block pedestrian crossings using a special traffic signal called a High Intensity Activated Crosswalk. These signals temporarily stop vehicular traffic and provide safe passage for a pedestrian through the use of a signal with blinking yellow and red lights.

As a result of the increased pedestrian volume between the Metrorail and Springfield site, it is recommended as part of the Build with Mitigation Condition to develop a direct pedestrian connection between the Site East Access and Franconia-Springfield Metro Station. This may include using the planned complete street network along Metropolitan Center Drive Extension and Frontier Drive Extension or cutting the angle to form a direct path from Metropolitan Center Drive to the station and crossing Frontier Drive Extension between the Metro Station Access Road and Metropolitan Center Drive. Figure 7-44 illustrates a few options for connecting the Springfield site to the Metrorail station. Given the future development of Frontier Drive Extension, the change in topography in this location, and the future Metropolitan Center Drive Extension, it is recommended that a study be completed to find the best route for all users of the transportation network.

When compared to the Build Condition, the Build with Mitigation Condition would have additional beneficial impacts to the long-term pedestrian network. The recommended mitigation measures would improve the proposed pedestrian network corridor by adding a new link between the Springfield site and Franconia-Springfield Metro Station. It is assumed the proposed No-build, Build, and Build with Mitigation Condition pedestrian facilities between the Springfield site and the Metrorail station would be built to accommodate planned development and therefore the increase in pedestrians from the project would not adversely impact the pedestrian network. Therefore, the Build with Mitigation Condition would result in additional direct, long-term, beneficial impacts that would accrue to not only the FBI employees, but employees and visitors of the Springfield Metro Center II project and the Northern Virginia Community College campus. The Build with Mitigation Condition would continue to include isolated intersection improvements or short-term sidewalk closures causing direct, short-term, adverse construction impacts.

Figure 7-44: Pedestrian Connection Options between the Springfield Site and Franconia-Springfield Metro Station



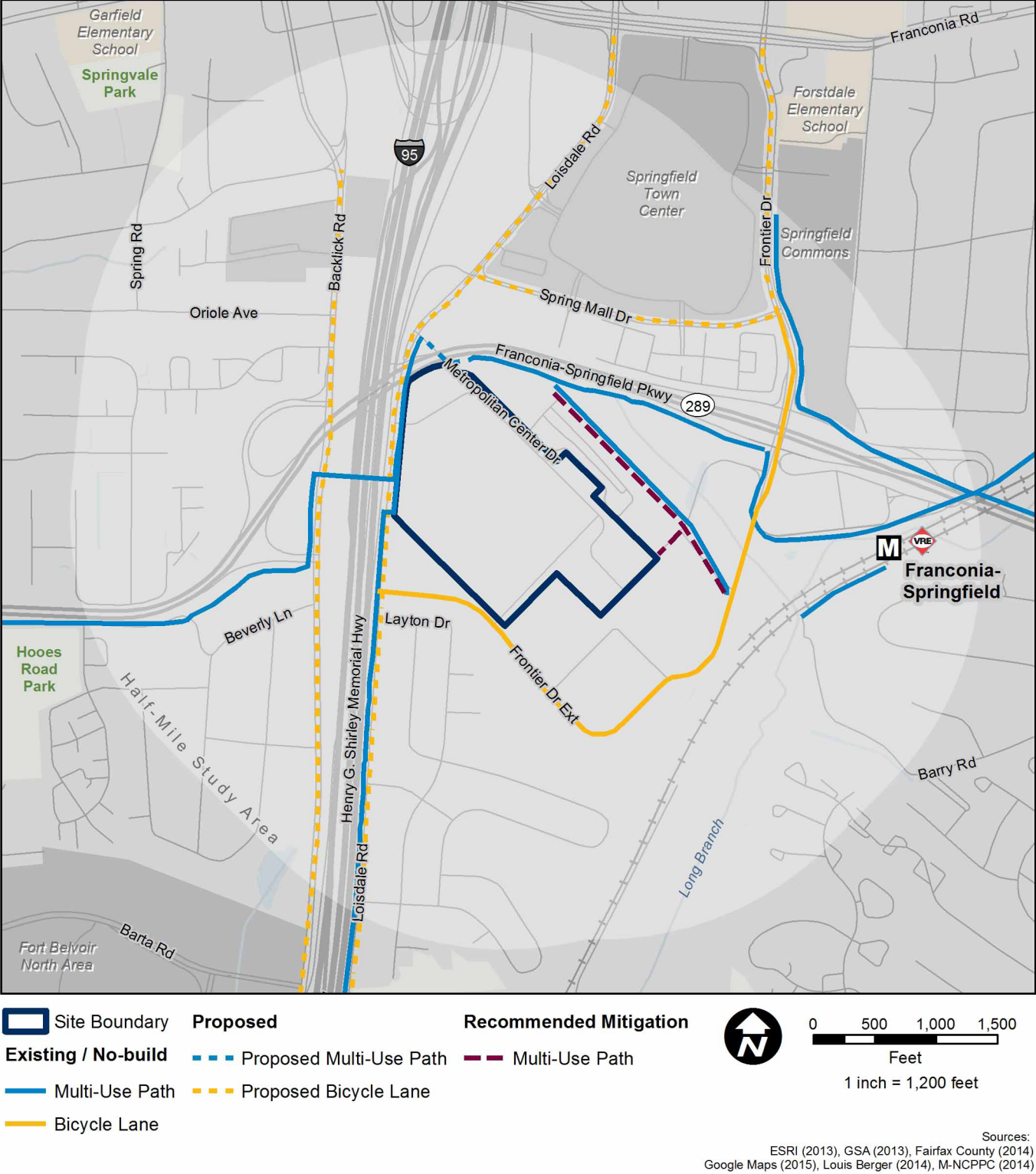
High Intensity Activated Crosswalk Signal in Alexandria, Virginia
Source: City of Alexandria (2015)

SPRINGFIELD PEDESTRIAN NETWORK ENVIRONMENTAL CONSEQUENCES SUMMARY



Build with Mitigation Condition:
Direct, long-term, beneficial impacts, and direct, short-term, adverse impacts.

Figure 7-45: Springfield Alternative Recommended Bicycle Mitigation



Build with Mitigation Condition Bicycles

In order to maximize the number of patrons accessing the site via bicycle, the site should be connected to the existing and planned bicycle network. Although the “segment north of and parallel to Metropolitan Center Drive” is shown as an existing off-road trail in the Fairfax County Bicycle Master Plan, this pathway appears to be overgrown based on Google aerial imagery from 2015 (Fairfax County 2014d; Google Maps). Therefore, one recommendation is to rehabilitate this off-road trail along GSA-owned railroad right-of-way as a mixed-use path and create a short bicycle connection along Joseph Alexander Road between the Springfield site and the overgrown trail, as summarized in table 7-47 and pictured in figure 7-45. These bicycle improvements would mitigate the increase in bicyclists expected with the Proposed Action at Springfield and provide multi-modal connectivity north of the site including a direct connection to the Franconia-Springfield Parkway Trail. The path alignment is on an old railroad right of way that GSA owns; therefore, coordination between Fairfax County and GSA would be needed as well as the introduction of a public easement if one does not already exist. As noted earlier, it is anticipated that the bicycle lanes along the Frontier Drive Extension would be built as part of the No-build Condition and are therefore not included in the mitigation.

When compared to the Build Condition, there would be improvements to the bicycle network under the Build with Mitigation Condition. The recommended mitigations would improve the level of impact from not measurable to direct, long-term, beneficial bicycle network impacts because the recommended mitigation measures would expand the area’s bicycle network. Depending on the timing and sequencing of the transportation mitigation improvements with surrounding infrastructure projects, there could continue to be direct, short-term, adverse construction impacts in the Build with Mitigation Condition, particularly on Frontier Drive Extension at the intersection with Metropolitan Center Drive Extension where a roundabout would be introduced, interrupting the No-build Condition bicycle lanes.

Build with Mitigation Condition Public Transit

To encourage employees to use transit to the Springfield site, a shuttle bus service is recommended between Franconia-Springfield Metro Station and the Springfield site as part of the Build with Mitigation Condition to accommodate Springfield site patrons who use transit. The shuttle route would likely use the Franconia-Springfield Metro Station Access Road, the Frontier Drive Extension, Metropolitan Center Drive Extension, and Franconia-Springfield Parkway service roads and ramps north of the parkway as illustrated in figure 7-46. The Springfield TIA (Appendix E) contains the detailed shuttle bus discussion and analysis.

SPRINGFIELD BICYCLE NETWORK ENVIRONMENTAL CONSEQUENCES SUMMARY

Build with Mitigation Condition:
Direct, long-term, beneficial impacts.

Table 7-47: Springfield Recommended Bicycle Mitigation

Roadway	From/To	Type
Segment north of and parallel to Metropolitan Center Drive	Franconia-Springfield Parkway Trail to Frontier Drive Extension, with connection to Springfield site along Joseph Alexander Road	Multi-use Path

Source: Fairfax County (2014c); Google Maps

Recommended Transit Mitigation

The following recommendations in table 7-48 are made to mitigate the proposed transit impacts of the Springfield Build Condition.

When compared to the Build Condition, there would be no difference in long-term public transit capacity impacts under the Build with Mitigation Condition because transit service would remain under capacity. The recommended traffic mitigations along Loisdale Road and the Frontier Drive Extension, as shown in figure 7-48, would reduce traffic delays for all vehicles to conditions better than the No-build Condition. Because buses along this route would also experience reduced delays, including FXC Route 334, there would be overall beneficial impacts to bus service compared to the baseline No-build Condition.

The implementation of the shuttle between the Franconia-Springfield Metro Station and the Springfield site would cause direct, beneficial impacts for the FBI employees. Based on limiting the shuttle service to the use of FBI employees, there would be no impact to the overall public transit system. The actual shuttle service could operate along a different route and/or could be integrated into an existing or new route provided by a public or private provider.

Table 7-48: Springfield Alternative Recommended Transit Mitigation

Impact	Mitigation
To maximize the number of site patrons utilizing Metrorail, a shuttle bus would be implemented between the Springfield site and Franconia-Springfield Metro Station due to the over 0.5-mile walk between the station and the site.	Implement shuttle bus service between Franconia-Springfield Metro Station and the Springfield site
The shuttle bus service would contribute additional peak hour trips to the local roadway network and would require the use of two bus bays at the station, which could be accommodated once WMATA constructs three new planned bus bays at the station.	

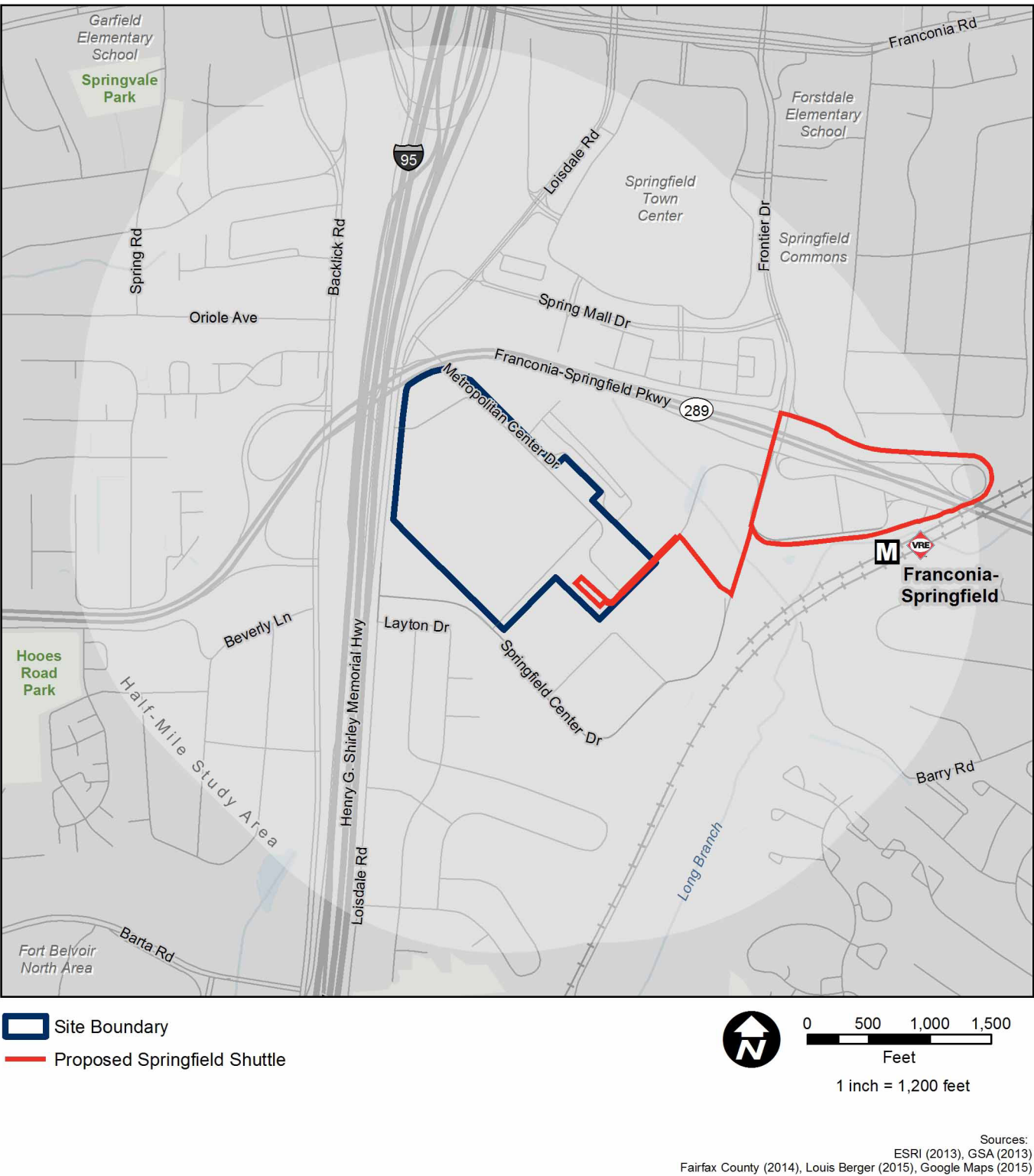
During construction, when compared to the Build Condition, the level of impacts would deteriorate from direct, short-term, adverse to direct, short-term, major adverse impacts caused by construction vehicles blocking the one or more lanes near the project site and intermittent lane closures at a number of isolated intersections affecting all buses servicing the study area.

Build with Mitigation Condition Parking

As mentioned in the Build Condition section, parking impacts would largely be addressed through development and implementation of a TMP, which would include preferred strategies for discouraging employees from parking on local streets. Because the TMP would be implemented as part of the Build Condition, there would be minimal changes in parking impacts between the Build and Build with Mitigation Conditions. The introduction of a roundabout as mitigation at the intersection of Frontier Drive Extension and Metropolitan Center Drive Extension would remove several on-street parking spaces (see proposed mitigation locations in figure 7-48),

Due to the small reduction in public on-street parking

Figure 7-46: Springfield – Franconia-Springfield Metro Station Anticipated Shuttle Route



**SPRINGFIELD PARKING
ENVIRONMENTAL CONSEQUENCES
SUMMARY**

Build with Mitigation Condition:
Direct, short- and long-term, adverse
impacts.

spaces, when compared to the Build Condition, there would be a change in long-term parking impacts from no measurable direct, long-term impacts to direct, long-term, adverse impacts to parking. Compared to the Build Condition, there would be a change in short-term construction parking impacts from no measurable direct, short-term impacts to direct, short-term, adverse impacts under the Build with Mitigation Condition as a result of construction of the roundabout on Frontier Drive Extension that would impact to-street parking, as shown in figure 7-48.

**Build with Mitigation Condition Traffic
Analysis**

Development of Mitigated Network

Based on the Build Condition traffic operations and queuing analysis (defined in section 3.10.4.3), a number of intersections would fail and require mitigation. The dynamic traffic assignment (DTA) process (see section 3.10.4.3) was followed to identify the route vehicle trips would use after implementing the following proposed major mitigation strategies:

- Adding a new 430-foot right-turn lane at the Franconia-Springfield Parkway off-ramp to Frontier Drive
- Upgrading the intersection of Loisdale Road and Frontier Drive Extension to include a second left-turn lane for the southbound approach and a second lane departing the intersection south on Loisdale Road to allow a double left from Frontier Drive Extension
- Updating the traffic signal timing along Loisdale Road between Franconia Road and Frontier Drive Extension based on all forecasted FBI vehicle trips traveling between Franconia Road and the Springfield site using Loisdale Road
- Updating the traffic signal timings along Frontier Drive between Franconia Road and Franconia-Springfield Parkway based on all forecasted FBI vehicle trips traveling between Franconia Road and the Springfield site using Frontier Drive

The Springfield TIA contains the details covering the process and results from running the DTA (Appendix E). Figure 7-47 contains the Build with Mitigation Condition turning movement volumes.

Recommend Mitigation Measures

Section 3.10.4.3 contains the process followed to develop the full list of mitigation. Table 7-49 contains the list of recommended mitigation measures. Figure 7-48 shows the locations of the mitigation measures.

*Build with Mitigation Condition Intersection
Operations Analysis*

Based on the Synchro™ analysis, all but one signalized study area intersection would operate at acceptable overall conditions during the morning and afternoon peak hours. The following intersection in the study area would operate with overall unacceptable conditions:

- Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street (Intersection #21)

Based on the Synchro™ analysis, there would be one unsignalized intersection that would have turning movements or overall operations with LOS degradation from an acceptable condition to an unacceptable condition when compared to the No-build Condition during the morning or afternoon peak hours. The one facility would only affect trucks attempting to turn left when exiting from the Springfield site. The Springfield TIA (Appendix E) contains a more detailed Build with Mitigation Condition traffic operations analysis.

The overall intersection LOS grades for the Build with Mitigation Condition are depicted in figure 7-48 for the AM and PM peak hours. Table 7-50 shows the results of the LOS capacity analysis and the intersection projected delay under the Build with Mitigation Condition during the AM and PM peak hours.

Build with Mitigation Condition Queuing Analysis

Based on the Synchro™ and SimTraffic analysis, there would be one signalized and two unsignalized intersection that would experience failing queue lengths in excess of 150 feet of the No-build Condition length. These intersections are as follows:

- Frontier Drive and Franconia-Springfield Parkway Intersection (Intersections #17 and #18)
 - These intersections would operate as one coordinated intersection and queues would occur between them and not affect any upstream or downstream intersections
- Loisdale Road and the Northern Entrance Road to GSA Facility (Intersection #6)
 - This facility would operate as a truck-only access to the Springfield site and would only impact exiting trucks attempting to make a left turn
- Frontier Drive Extension and Metropolitan Center Drive Extension intersection (Intersection #25)
 - The driveway serving the Springfield Metro Center II Phase II planned office development is currently designed too close to the proposed roundabout with the Frontier Drive Extension and would need to be moved further west

Because Synchro™/SimTraffic™ are tools primarily designed to measure the operations and delay at signalized and unsignalized intersections, these tools are not meant to model the effect of merges caused by a lane drop on an on-ramp to a freeway facility. They tend to show worse conditions than would actually occur. There is a major on-ramp from Franconia Road westbound providing connection to several Interstates (I-95, I-395, and I-495). This ramp begins as a two-lane ramp, but quickly splits 300-feet downstream with vehicles destined to I-95 southbound using the right lane and all other destinations using the left-lane. Based on the Build with Mitigation Condition, it is forecasted that this two-lane ramp would carry 2,088 vehicles per hour with 1,695 of them (81 percent) requiring the use of the left lane. Assuming a 50/50 split between the lanes, this would result in 30 percent of the vehicles using the right lane needing to merge into the left lane.

Because Synchro™/SimTraffic™ is not the proper tool to measure this scenario, TransModeler™ was used to estimate the potential queue lengths at the Franconia Road and Commerce Street/Loisdale Road intersection to ensure the effect of the merge would not cause a queue on Franconia Road westbound or Loisdale Road northbound. Based on the TransModeler™ simulation result the queues would not extend back to the previous intersection.

The results of the Build with Mitigation Condition queuing analysis for both signalized and unsignalized intersections are contained in the Springfield TIA (Appendix E).

Summary of Traffic Analysis: Build with Mitigation Condition

Overall, the study area would no longer experience corridor-level impacts along Frontier Drive or Loisdale Road resulting in changing the Build Condition impacts from direct, long-term, major adverse to no measurable direct, long-term impacts under the Build with Mitigation Condition. Isolated intersection improvements aimed at addressing the Build Condition impacts specifically along Loisdale Road, Frontier Drive, and the Frontier Drive Extension would be addressed under the Build with Mitigation Condition. This would result in changing the impacts from direct, long-term, adverse impacts to direct, long-term, beneficial impacts, since the operations would improve to a better operation than the No-build Condition. There would be no failing interstate facilities under the Build Condition and Build with Mitigation Condition; therefore, there would be no measurable direct, long-term impacts to the interstate system (see section 6.4.6.3).

The construction impacts would change from direct, short-term, adverse impacts under the Build Condition during construction to direct, short-term, major adverse impacts under the Build with Mitigation Condition during construction. This change reflects the short-term impacts from adding roadway construction related trips caused by trucks, employees, and equipment as well as intermittent lane or road closures at locations where the roadway improvements would occur.

**SPRINGFIELD TRAFFIC
ENVIRONMENTAL CONSEQUENCES
SUMMARY**



Build with Mitigation Condition:
No measurable impacts to corridors and Interstate facilities; direct, long-term, beneficial impacts to isolated intersections; and direct, short-term, major adverse impacts during the construction period.

Figure 7-47: Springfield Build with Mitigation Condition Turning Movement Volumes

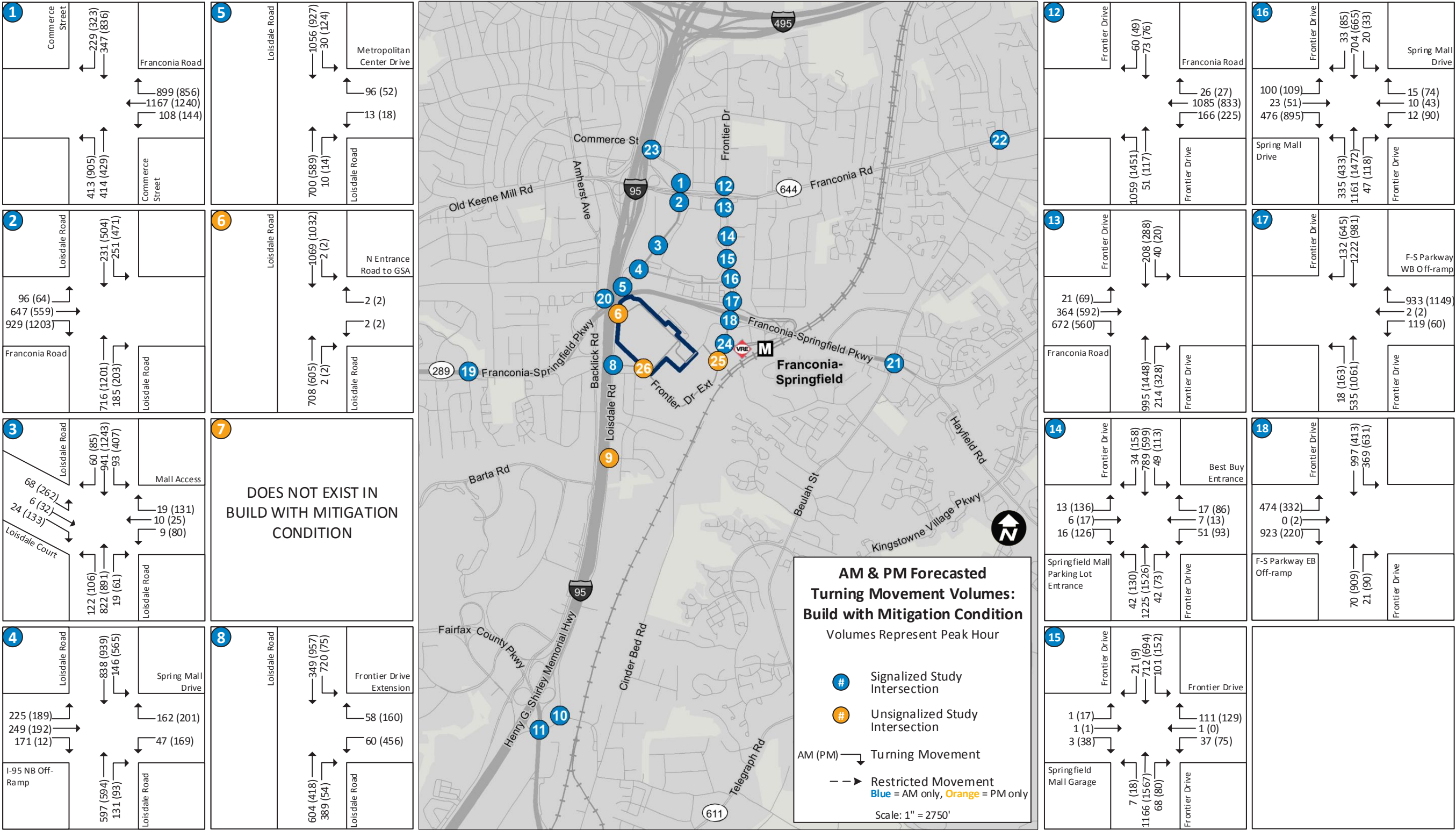
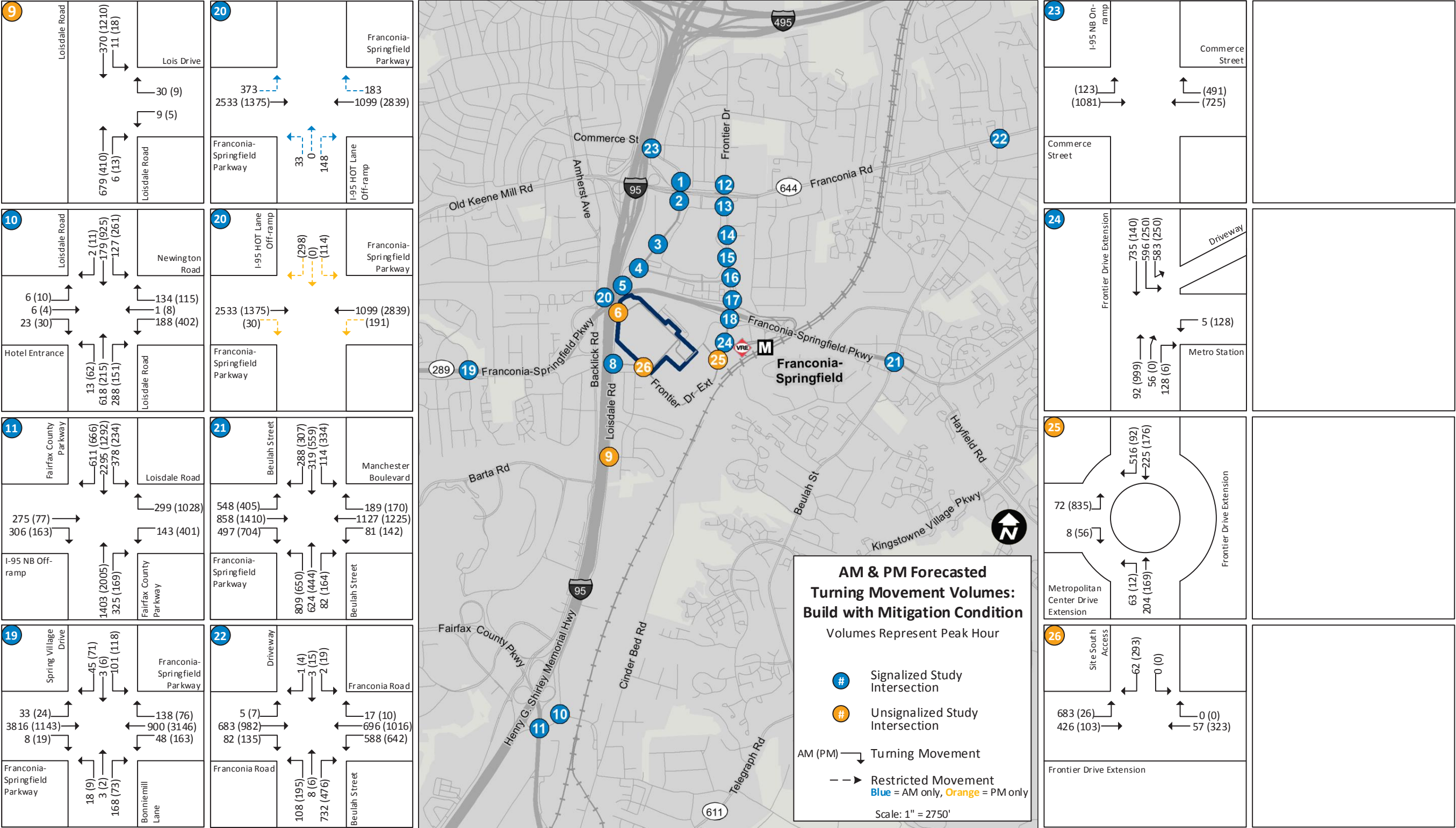


Figure 7-47: Springfield Build with Mitigation Condition Turning Movement Volumes (continued)



Note: Intersection #23 is analyzed only during the PM peak hour.

Table 7-49: Springfield Recommended Mitigation Measures

Map ID	Location	Mitigation	Strip Land Taking (Approximate Linear Feet)
A	Franconia Road (VA 644) Westbound and Commerce Street	<ul style="list-style-type: none"> Optimize the traffic signal and coordinate timings with nearby key intersections for AM and PM peak periods 	None
B	Franconia Road (VA 644) Eastbound and Loisdale Drive	<ul style="list-style-type: none"> For the Loisdale Road northbound approach, revise the planned roadway improvement design to lengthen the left-turn lane by 225 feet resulting in a 775-foot turn bay and revise the lane geometry to allow the Loisdale Road northbound left lane to directly feed into the middle left-turn lane at the intersection, the Loisdale Road northbound middle lane directly feed into the right most left-turn lane at the intersection, and Loisdale Road northbound right lane directly feed into the left most through lane at the intersection. For the Franconia Road eastbound approach, revise the planned roadway improvement design to extend the right-turn lane by 50 feet resulting in a 350-foot right-turn lane. Optimize the traffic signal and coordinate timings with nearby key intersections for AM and PM peak periods. 	None
C	Loisdale Road and Loisdale Court	<ul style="list-style-type: none"> Optimize the traffic signal for the AM peak period and coordinate timings with nearby key intersections for AM and PM peak periods. 	None
D	Loisdale Road and I-95 Northbound off-ramp/ Spring Mall Drive	<ul style="list-style-type: none"> For the Spring Mall Drive westbound, revise the planned roadway improvement design by changing the channelized right-turn lane to provide a free merge onto Loisdale Road northbound by reducing the number of departing lanes from three to two on Loisdale Road northbound, thus allowing the channelized right-turn to feed into the planned new third lane. Optimize the traffic signal and coordinate timings with nearby key intersections for AM and PM peak periods. 	None
E	Loisdale Road and Metropolitan Center Drive	<ul style="list-style-type: none"> Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period. 	None
F	Loisdale Road and Frontier Drive Extension	<ul style="list-style-type: none"> For the Loisdale Road northbound approach, revise the planned roadway improvement design to include a 300-foot right-turn lane (strip land taking required; approximately 400 linear feet). For the Loisdale Road southbound approach, revise the planned roadway improvement design to include two 350-foot left turn lanes (strip land taking required; approximately 400 linear feet). Optimize the traffic signal for AM and PM peak periods. 	800
G	Loisdale Road and Newington Road	<ul style="list-style-type: none"> For the Newington Road westbound approach, extend the right-turn lane by 85 feet creating a 250-foot turning lane 	None
H	Loisdale Road and Fairfax County Parkway (VA 286)	<ul style="list-style-type: none"> For the Fairfax Count Parkway northbound approach, revise the planned roadway improvement design to lengthen the right-turn lane and new through lane by 50 feet resulting in one 350-foot through lane and one 350-foot right-turn lane. For the Fairfax County Parkway southbound approach, revise the planned roadway improvement design to lengthen the left-turn lanes by 60 feet resulting in two 450-foot left-turn lanes. For the Loisdale Road westbound approach, revise the planned roadway improvement design to lengthen the existing right-turn lane by 60 feet resulting in a 425-foot right-turn lane (strip land taking required; approximately 60 linear feet). Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period. 	60

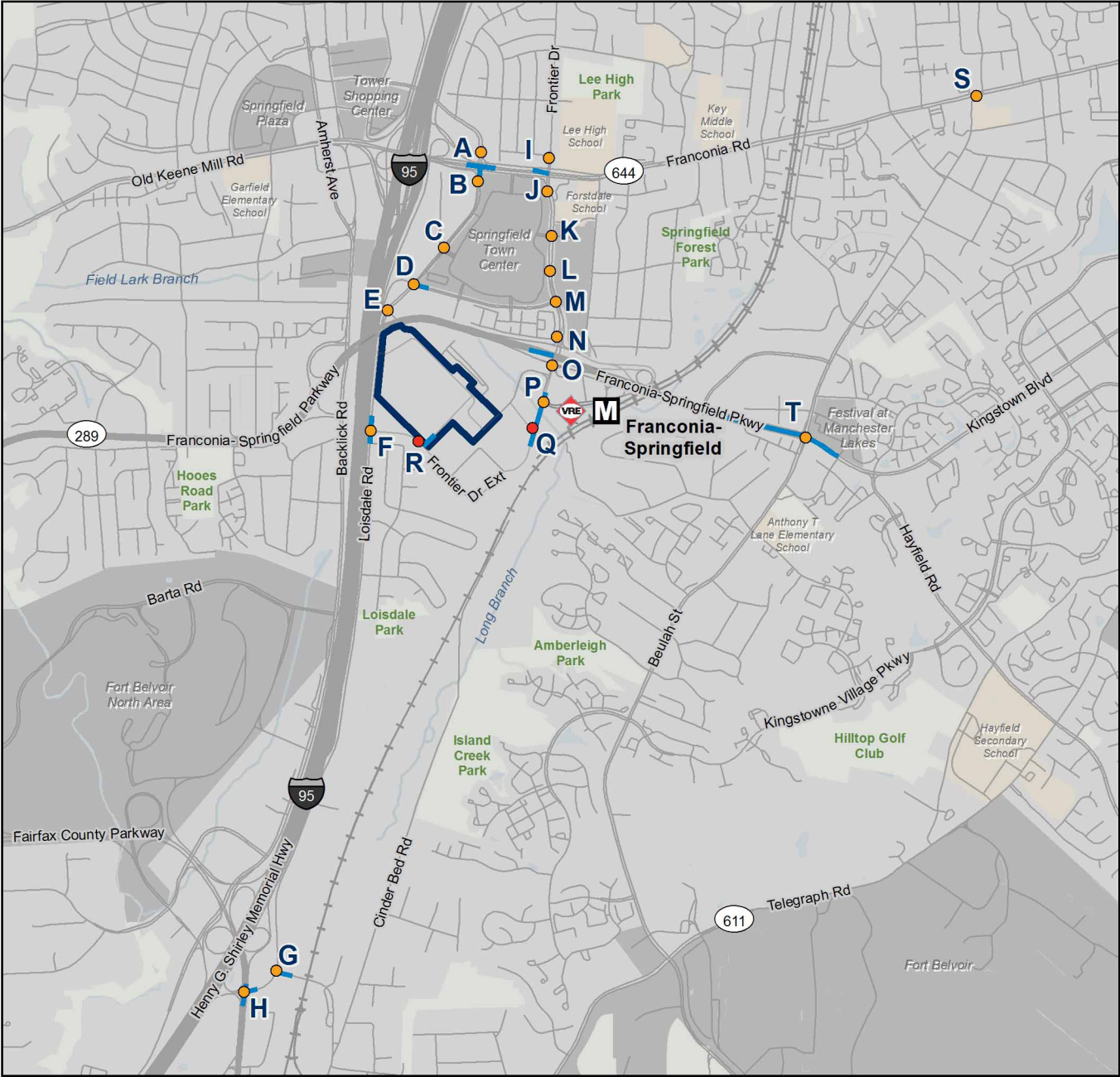
Table 7-49: Springfield Recommended Mitigation Measures (continued)

Map ID	Location	Mitigation	Strip Land Taking (Approximate Linear Feet)
I	Franconia Road (VA 644) Westbound and Frontier Drive	<ul style="list-style-type: none">Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period.Construct a network of pedestrian bridges to provide a safe path for pedestrians to cross Frontier Drive and Franconia Road for both the eastbound and westbound directions.	None
J	Franconia Road (VA 644) Eastbound and Frontier Drive	<ul style="list-style-type: none">For the Frontier Drive northbound approach, extend the left-turn lane by 95 feet resulting in a 600-foot left-turn lane.Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period.Construct a network of pedestrian bridges to provide a safe path for pedestrians to cross Frontier Drive and Franconia Road for both the eastbound and westbound directions.	None
K	Frontier Drive and North Mall Entrance	<ul style="list-style-type: none">Optimize the traffic signal for the PM peak period and coordinate timings with nearby key intersections for the AM peak period.	None
L	Frontier Drive and Mall South Entrance	<ul style="list-style-type: none">Optimize the traffic signal for the PM peak period and coordinate timings with nearby key intersections for the AM peak period.	None
M	Frontier Drive and Spring Mall Drive	<ul style="list-style-type: none">Optimize the traffic signal and coordinate timings with nearby key intersections for the AM peak period.	None
N	Frontier Drive and Franconia-Springfield Parkway (VA 289) westbound on/off ramps	<ul style="list-style-type: none">Optimize the traffic signal for AM and PM peak periods and coordination timings with nearby key intersections for the PM peak period.	None
O	Frontier Drive and Franconia-Springfield Parkway (VA 289) eastbound on/off ramps	<ul style="list-style-type: none">For the Franconia-Springfield Parkway eastbound approach, create a new 430-foot left-turn lane, create a new 440-foot right-turn lane, and alter the off-ramp to feed into each turn lane. The resulting lane geometry would be two left-turn lanes and two right-turn lanes.Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period.	None

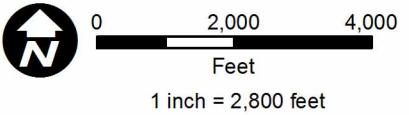
Table 7-49: Springfield Recommended Mitigation Measures (continued)

Map ID	Location	Mitigation	Strip Land Taking (Approximate Linear Feet)
P	Frontier Drive Extension and Metro Station Access Drive	<ul style="list-style-type: none">For the northbound Frontier Drive Extension, revise the planned roadway improvement design to extend the right-turn lane by 60 feet resulting in a 200-foot right-turn lane.Optimize the traffic signal for the PM peak period.	None
Q	Frontier Drive Extension and Metropolitan Center Drive Extension	<ul style="list-style-type: none">Revise the planned roadway improvement design to create a two-lane roundabout with two lane exits for Frontier Drive Extension northbound and southbound and a one lane exit for Metropolitan Center Drive Extension. Create two-lane entries for all three approaches.For the Frontier Drive Extension southbound approach, create a 175-foot right-turn lane that feeds into a 275-foot right-turn bypass lane and rejoins Metropolitan Center Drive Extension after the intersection serving the Springfield Metro Center Phase II development (approximately 150 feet west of the roundabout).	None
R	Frontier Drive Extension and Site South Access	<ul style="list-style-type: none">For the Frontier Drive Extension eastbound approach, revise the planned roadway improvement design to create a 275-foot left turn lane.For the Site South Access southbound approach, create a channelized right-turn lane that yields onto westbound Frontier Drive Extension and a one-lane approach serving left-turning vehicles.The northbound Site South Access departing lanes would need to accommodate the ECF approximately 165 feet north of the intersection requiring five lanes.	None
S	Franconia Road (VA 644) and Beulah Street	<ul style="list-style-type: none">Optimize the traffic signal for the PM peak period.	None
T	Franconia-Springfield Parkway (VA 289) and Beulah Street	<ul style="list-style-type: none">For the Franconia-Springfield Parkway eastbound approach, change the lane geometry to provide one left-turn lane, three through lanes, and one right-turn lane by assigning the existing right-turn lane as a through lane and creating a new 200-foot right-turn lane.Extend the new through lane into the existing right-turn lane past the intersection and create a new 1,150-foot fourth lane past the intersection to receive the channelized right from the Beulah Street southbound approach. Extend the fourth lane to Walking Lane.	None

Figure 7-48: Springfield Build with Mitigation Condition Improvement Locations

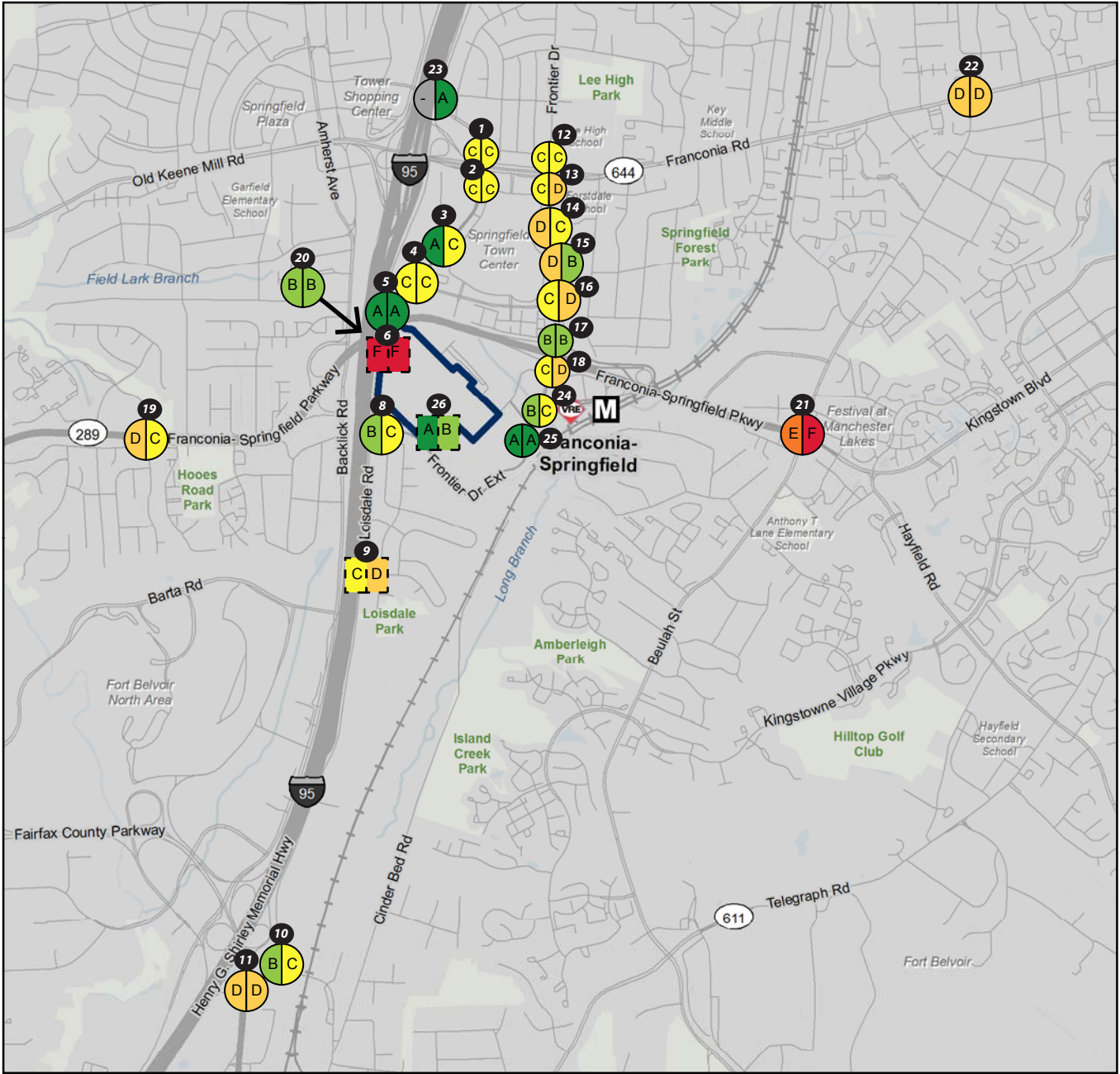


- Site Boundary
- Roadway Improvement
- Intersection Improvement (Signalized)
- Intersection Improvement (Unsignalized)

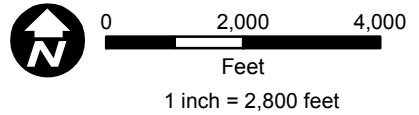


Sources:
ESRI (2013), GSA (2013)
Fairfax County (2014)

Figure 7-49: Springfield Build with Mitigation Condition Intersection LOS for AM and PM Peak Hours



- Site Boundary
- Intersection Level of Service (LOS)
- Signalized Intersections
- Unsignalized Intersections
- Intersection Number
- LOS represents minor approaches only



Sources:
ESRI (2013), GSA (2013)
Fairfax County (2014)

Table 7-50: Springfield Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis

#	Intersection	No-build Condition						Build with Mitigation Condition					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check
1	Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)												
		24.0	C	Pass	31.1	C	Pass	23.8	C	Pass	34.5	C	Pass
2	Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)												
		35.7	D	Pass	32.1	C	Pass	32.6	C	Pass	33.4	C	Pass
3	Loisdale Road & Loisdale Court/Mall Access (Signalized)												
		9.1	A	Pass	21.9	C	Pass	9.2	A	Pass	21.9	C	Pass
4	Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)												
		32.9	C	Pass	23.7	C	Pass	22.0	C	Pass	20.6	C	Pass
5	Loisdale Road & Metropolitan Center Drive (Signalized)												
		6.7	A	Pass	4.1	A	Pass	5.6	A	Pass	4.2	A	Pass
6	Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)												
		0.3	-	Pass	0.1	-	Pass	11.2	-	Pass	6.8	-	Pass
7	Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC) ^a												
		1.6	-	Pass	0.9	-	Pass	-	-	-	-	-	-
8	Loisdale Road & Frontier Drive Extension (Signalized)												
		9.2	A	Pass	23.8	C	Pass	14.6	B	Pass	26.8	C	Pass
9	Loisdale Road & Lois Drive (TWSC)												
		0.7	-	Pass	0.3	-	Pass	0.7	-	Pass	0.3	-	Pass
10	Loisdale Road & Hotel Entrance/Newington Road (Signalized)												
		16.7	B	Pass	31.6	C	Pass	16.8	B	Pass	34.4	C	Pass
11	Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)												
		35.7	D	Pass	37.7	D	Pass	35.7	D	Pass	41.3	D	Pass
12	Frontier Drive & Franconia Road (Westbound) (Signalized)												
		30.7	C	Pass	24.6	C	Pass	32.2	C	Pass	26.6	C	Pass
13	Frontier Drive & Franconia Road (Eastbound) (Signalized)												
		38.5	D	Pass	31.5	C	Pass	33.0	C	Pass	39.8	D	Pass
14	Frontier Drive & Best Buy/Springfield Mall Parking Lot Entrance (Signalized)												
		41.8	D	Pass	30.8	C	Pass	43.3	D	Pass	26.7	C	Pass
15	Frontier Drive & Home Depot/Springfield Mall Garage Entrance (SMGE) (Signalized)												
		37.3	D	Pass	19.8	B	Pass	36.5	D	Pass	16.3	B	Pass
16	Frontier Drive & Spring Mall Drive (Signalized)												
		22.8	C	Pass	38.4	D	Pass	20.9	C	Pass	35.1	D	Pass
17	Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)												
		31.3	C	Pass	15.5	B	Pass	13.3	B	Pass	13.0	B	Pass
18	Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)												
		47.6	D	Pass	32.1	C	Pass	34.7	C	Pass	41.8	D	Pass

Table 7-50: Springfield Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

#	Intersection	No-build Condition						Build with Mitigation Condition					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check
19	Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)												
		46.8	D	Pass	27.6	C	Pass	53.4	D	Pass	28.7	C	Pass
20	Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized) ^b												
		17.5	B	Pass	15.8	B	Pass	18.0	B	Pass	15.9	B	Pass
21	Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)												
		84.1	F	Fail	96.9	F	Fail	77.2	E	Fail	92.5	F	Fail
22	Franconia Road & Beulah Street (Signalized)												
		39.9	D	Pass	51.1	D	Pass	39.6	D	Pass	50.3	D	Pass
23	I-95 NB On-ramp & Commerce Street (Signalized) ^c												
		-	-	-	2.8	A	Pass	-	-	-	3.1	A	Pass
24	Frontier Drive Extension & Metro Station (Signalized)												
		16.4	B	Pass	18.7	B	Pass	16.5	B	Pass	28.2	C	Pass
25	Frontier Drive Extension & Metropolitan Center Drive Extension ^d												
		2.1	-	Pass	4.7	-	Pass	2.3	A	Pass	7.9	A	Pass
26	Frontier Drive Extension & Site South Access (TWSC)												
		-	-	-	-	-	-	5.7	-	Pass	5.0	-	Pass

Notes:

LOS = Level of Service

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

Delay is Measured in Seconds Per Vehicle.

Red cells denote intersections operating at unacceptable conditions.

^a Intersection #7 would be removed for the Build Condition and Build with Mitigation Condition.

^b Intersection would continue to operate with a different lane configuration during the AM and PM peak hours.

^c Intersection is not analyzed during the AM peak hour.

^d Intersection would operate as a TWSC intersection under the No-build Condition and as a roundabout under the Build with Mitigation Condition.

Recommended Traffic Mitigation

Table 7-51 contains the traffic results for all study area intersections covering each condition from No-build through Build with Mitigation. The results include a pass or fail rating for the traffic operations and queue length. Based on the worsening condition from the added vehicle trips from the Build Condition, the recommended mitigation is listed. Recommended traffic mitigation measures were developed to address the substantial traffic impacts caused by the addition of the Consolidated FBI HQ in Springfield. These included traffic signal optimization, road widening, lane geometry improvements at intersections, constructing new pedestrian bridges, and changing roadway designs to construct a roundabout instead of an unsignalized intersection. If implemented, the recommended traffic mitigation measures would maintain acceptable traffic flow conditions based on the Springfield Site Transportation Agreement.

Freeway Analysis Summary

Section 3.10.4.3 defines the interstate system and the software utilized to analyze interstate operations.

Based on the proposed FBI trip distribution, 70 percent of forecasted FBI vehicle trips would use the interstate system (I-95/I-495, I-395, or I-495) to access the proposed site. Reflecting the importance of the interstate system serving the Springfield site, all three interstates were evaluated to determine whether or not the added vehicle trips would cause any failing interstate facilities. Based on the agreed Springfield Site Transportation Agreement, the evaluated interstate facilities focused on the peak direction only and at the primary off-ramps serving the inbound forecasted FBI vehicle trips during the AM peak hour and the on-ramps serving the outbound forecasted FBI vehicle trips during the PM peak hour.

The analysis concluded that no interstate facilities would fail based on the forecasted volumes. The Springfield TIA provides the detailed freeway analysis (Appendix E).

Entry Control Facility Summary

The ECF analysis was performed once the complete set of external roadway mitigation was established. All mitigation measures were coded into TransModeler™ and several scenarios were tested to determine the minimum number of lanes capable of handling the AM peak hour forecasted FBI vehicle trips. It was determined that five lanes at the Site South Access and two lanes at the Site East Access were required to handle the forecasted demand, although four lanes at the Site South Access may have worked if more queue space was available between the ECF and Frontier Drive Extension.

The Springfield TIA provides the detailed ECF analysis (Appendix E).

Transportation Impacts

The overall impacts to transportation under the Springfield Alternative would be as follows:

- direct, long-term, beneficial impacts to the pedestrian network, bicycle network, traffic (isolated intersections) and employee access to the Franconia-Springfield Metro Station (shuttle) at the Springfield site; and
- direct, long-term, adverse impacts to the parking at the Springfield site; and
- no measurable direct, long-term impacts to the transit capacity or bus operations, truck access, and traffic (corridor-based or interstate facilities) at the Springfield site; and
- no measurable direct, long-term impacts to truck access at the Springfield site during the construction period; and
- direct, short-term, major adverse bus operation and traffic impacts at the Springfield site during the construction period; and
- direct, short-term, adverse impacts to the pedestrian network, bicycle network, and parking at the Springfield site during the construction period.

Table 7-51: Springfield Overall Traffic Impacts

#	Intersection	No-build Condition				Build Condition				Build with Mitigation Condition				Recommended Mitigation
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
		HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	
1	Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	None Required
2	Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Lengthen the left-turning lanes along the Loisdale Road northbound approach
3	Loisdale Road & Loisdale Court/Mall Access (Signalized)													
		Pass	Exceed	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Optimize the traffic signal
4	Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Exclude the planned roadway improvement to remove the channelized right-turn lane along the Spring Mall Drive westbound approach
5	Loisdale Road & Metropolitan Center Drive (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Optimize the traffic signal
6	Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	None Required
7	Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC) ^a													
		Pass	Pass	Pass	Pass	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	None Required
8	Loisdale Road & Frontier Drive Extension (Signalized)													
		Pass	Fail	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Add a second left-turn lane along the Loisdale Road southbound approach
9	Loisdale Road & Lois Drive (TWSC)													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	None Required
10	Loisdale Road & Hotel Entrance/Newington Road (Signalized)													
		Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Pass	Lengthen the right-turn lane along the Newington Road westbound approach
11	Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)													
		Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass	Fail	Revise the planned roadway improvement to extend the proposed turn lanes to their maximum without impacting the right-of-way or alignment of the roadway

Table 7-51: Springfield Overall Traffic Impacts (continued)

#	Intersection	No-build Condition				Build Condition				Build with Mitigation Condition				Recommended Mitigation
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
		HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	
12	Frontier Drive & Franconia Road (Westbound) (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Construct a pedestrian bridge and optimize the traffic signal
13	Frontier Drive & Franconia Road (Eastbound) (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Construct a pedestrian bridge, lengthen the left-turning lane along the Frontier Drive northbound approach, and optimize the traffic signal
14	Frontier Drive & Best Buy/Springfield Mall Lot Entrance (Signalized)													
		Pass	Pass	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Optimize the traffic signal
15	Frontier Drive & Home Depot/Springfield Mall Garage Entrance (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Optimize the traffic signal
16	Frontier Drive & Spring Mall Drive (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Optimize the traffic signal
17	Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)													
		Pass	Fail	Pass	Pass	Fail	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Optimize the traffic signal
18	Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)													
		Pass	Fail	Pass	Fail	Fail	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Optimize the traffic signal and add a new right-turning lane along the Franconia-Springfield eastbound off-ramp approach
19	Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)													
		Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	None Required
20	Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized) ^b													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	None Required
21	Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)													
		Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Add a fourth through lane along the Manchester Boulevard westbound approach and extend onto Franconia-Springfield Parkway
22	Franconia Road & Beulah Street (Signalized)													
		Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Optimize the traffic signal
23	I-95 NB On-ramp & Commerce Street (Signalized) ^c													
		N/A	N/A	Pass	Pass	N/A	N/A	Pass	Pass	N/A	N/A	Pass	Pass	Optimize the traffic signal

Table 7-51: Springfield Overall Traffic Impacts (continued)

#	Intersection	No-build Condition				Build Condition				Build with Mitigation Condition				Recommended Mitigation
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
		HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	
24	Frontier Drive Extension & Metro Station (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Pass	Optimize the traffic signal and lengthen the right-turn lane along the Frontier Drive Extension northbound approach
25	Frontier Drive Extension & Metropolitan Center Drive Extension ^d													
		Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Revise the planned roadway improvement to construct a two-lane roundabout
26	Frontier Drive Extension & Site South Access (TWSC)													
		N/A	N/A	N/A	N/A	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Add a left-turn lane along the Frontier Drive Extension eastbound approach

Notes:

EB = Eastbound, WB = Westbound, NB= Northbound, SB = Southbound

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

Delay is Measured in Seconds Per Vehicle.

Orange cells denote where the queue length is 150 feet longer than the No-build Condition. Intersections #17 and #18 operate as one intersection and the queue is contained within the two intersections.

Red cells denote intersections operating at unacceptable HCM 2000 or queueing exceeds lane storage.

Yellow cells denote intersections operating at unacceptable HCM 2000; however, the operations is equal or better than the No-build Condition (or less than 150 feet greater in queue length than the No-build Condition).

^a Intersection #7 would be removed for the Build with Mitigation Condition.

^b Intersection continues to operate with a different lane configuration during the AM and PM peak hours.

^c Intersection not analyzed during the AM peak hour.

^d Intersection would operate as a TWSC intersection under the No-build Condition and a roundabout under the Build with Mitigation Condition.

TRANSPORTATION EVALUATION SUMMARY AND CONCLUSIONS

A total of 3,296 AM peak hour and 3,047 PM peak hour person trips are projected to be added to all modes of transportation. Total Metrorail and FXC transit trips are projected as 1,424 AM peak hour and 1,317 PM peak hour trips. Total vehicle trips are projected as 1,099 AM peak hour and 1,015 PM peak hour trips. The remaining trips would be commuter rail, commuter bus, bicycle, or walking trips.

The pedestrian network would expand under the No-build Condition with the inclusion of the Frontier Drive Extension and Metropolitan Center Drive Extension providing a new connection between the Franconia-Springfield Metro Station and Loisdale Road serving Metropolitan Center Drive and the Northern Virginia Community College. The inclusion of the Springfield site would allow for the same connections as the No-build Condition, as well as a new connection as part of the recommended mitigation to be provided between Frontier Drive Extension and Franconia-Springfield Parkway directly serving an access point to the Springfield site. This new connection would provide for direct pedestrian connections between the Metrorail station and the Springfield site as well as the Northern Virginia Community College and proposed development near the site, thereby encouraging non-vehicular travel. It is assumed that all sidewalk curb ramps located adjacent to the parcel would also be constructed to ADA compliance.

The bicycle network would expand with the inclusion of the Frontier Drive Extension and Metropolitan Center Drive Extension providing new access between Frontier Drive and Loisdale Road. As part of the recommended mitigation, a new connection would be provided between Frontier Drive Extension and Franconia-Springfield Parkway directly serving an access point to the Springfield site. These new connections would provide for an interconnected bicycle network linking all proposed bicycle facilities in the study area and would encourage bicycle use to access the Springfield site.

The transit network (Metrorail, Metrobus, and FXC) would not be affected by development of the Proposed Action at the Springfield site. The Franconia-Springfield Metro Station and all bus service would operate below capacity with the addition of

the forecasted background growth and transit trips from the Springfield site. Three new bus bays are to be added to the Franconia-Springfield Metro Station and would accommodate the projected bus demand, including recommended shuttle buses operating between the station and Springfield site. It is assumed that WMATA would follow its long-term plan to address growth-related capacity issues for both bus and rail operations.

Parking availability would remain the same because the Springfield site would accommodate all parking needs on-site and implement a robust TMP to discourage employees from seeking alternative parking options in the nearby neighborhoods.

Truck access would be designed to accommodate the Springfield site from Loisdale Road at all times. This plan is not the official plan, but a plan to evaluate as part of the EIS. The Loisdale Road access would operate as a truck only access point, although it is assumed that all truck deliveries would be scheduled during the off-peak hours.

The traffic operations at one intersection (Franconia-Springfield Parkway at Manchester Boulevard/ Beulah Street) currently operate at an unacceptable level of service under the Existing Condition. Once the background growth, planned developments, and planned improvements are added (No-build Condition), the same intersection would continue to fail. There are a number of planned roadway improvements within the Springfield site study area to compensate for the vehicle trips added from the background growth.

The addition of the Springfield site to the traffic network would result in three intersections operating at an unacceptable level of service. These three failing intersections would experience equal or better operations than the No-build Condition as a result of recommended mitigation that include new turning lanes, extended turning lane lengths, new travel lanes, and a new roundabout. Overall, the roadway non-Interstate network would operate much better and experience shorter queues with the addition of the recommended mitigation when compared to the No-build Condition.

7.2.10 Greenhouse Gas Emissions and Air Quality

GREENHOUSE GAS EMISSIONS AND AIR QUALITY ASSESSMENT OF SIGNIFICANCE

Impacts to greenhouse gas emissions and air quality would not be significant, as defined in section 3.11.3.

7.2.10.1 Global Climate Change and Greenhouse Gases

This section provides a summary of the analysis results for GHG emissions and air quality. Additional technical supporting data and tables for this section are provided in Appendix F.

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no new measurable impacts to global climate change and GHGs because the continued operation of the site as a GSA warehouse complex would not alter the current level of GHGs in the atmosphere or otherwise contribute to climate change.

Springfield Alternative

Stationary source and building-related GHG emissions for the Springfield Alternative would be the same as those described for the Greenbelt site in section 5.2.10.1, resulting in direct, long-term, less than significant adverse impacts.

Table 7-52 summarizes the development of mobile source vehicle miles traveled (VMT) estimates for employee and contractor commutes to the Springfield site. The average one-way travel distance is based on existing FBI employee zip codes. If the Springfield site is selected, it is expected that new employees would locate in proximity to the Springfield site over time, reducing the average distance traveled. However, the data based on existing zip codes provides a realistic upper bound impact scenario.

Overall driving would increase relative to the Existing Conditions based on the mode share assumptions developed for the transportation analyses and the increase in the average distance traveled relative to existing employee zip codes. These factors combined result in an estimated 13 percent increase in mobile source GHG emissions relative to the JEH No-action Alternative (e.g., maintain FBI HQ at JEH and continue using off-site leased space). As a result, direct, long-term, adverse impacts to GHG emissions for the Springfield Alternative would be minimal.

7.2.10.2 Air Quality

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no new measurable impacts to air quality because the continued operation of the site as a GSA warehouse complex would not alter existing levels of air pollution.

Table 7-52: Springfield Alternative Employee Commute Vehicle Miles Traveled and Greenhouse Gas Emissions (2025)

	Springfield
Annual VMT (250 days)	45,366,629
Annual CO ₂ e- Metric Tons	11,541.0
Change in VMT from FBI HQ Remaining at JEH/off-site locations	5,305,816
Change in CO ₂ e from No-action FBI HQ Remaining at JEH/off-site locations (metric tons)	1,349.8
Percent Change	13.24%

SPRINGFIELD GLOBAL GREENHOUSE GASES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, long-term, adverse impacts to greenhouse gas emissions.

SPRINGFIELD AIR QUALITY ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short- and long-term, adverse impacts.

Figure 7-50: Springfield 1-hour NO₂ Project Increment Results

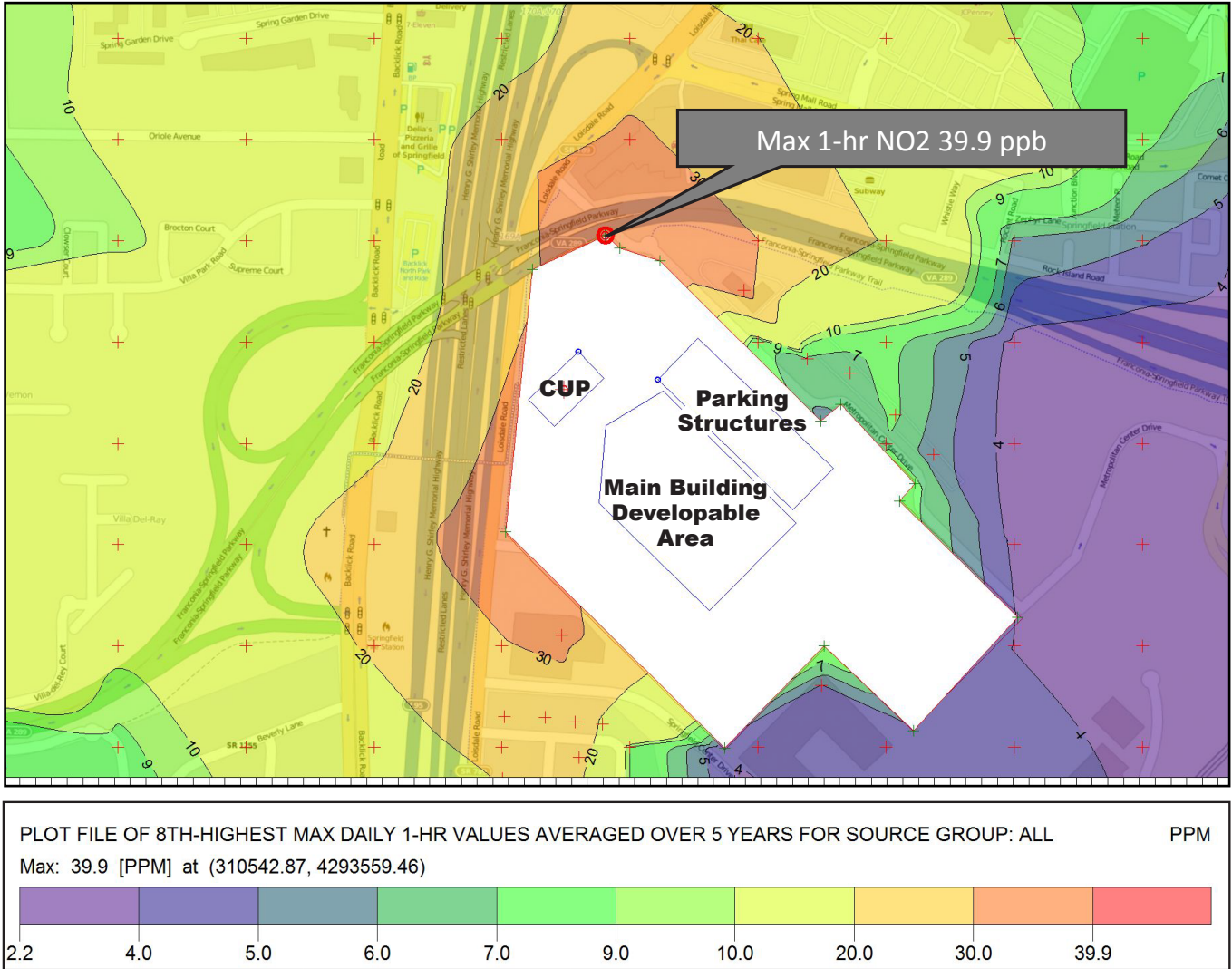


Table 7-53: Preliminary NO₂ Analysis Results - Springfield Site

	NO ₂ 1-hr (PPB)				NO ₂ Annual Average (PPB)			
	Background	Max Project Increment	Total	NAAQS	Background	Max Project Increment	Total	NAAQS
Springfield	60.1	39.9	100	100	12.4	2.4	14.8	53

ppb = parts per billion

Springfield Alternative

Stationary Source Impacts

Based on the assumptions outlined in section 3.11, annual stationary source emissions from the natural gas boilers would be the same as those described for the Greenbelt site. The boiler emissions of criteria pollutants would be well below (less than 25 percent) the applicable General Conformity de minimis criteria, and therefore would be considered adverse, but less than significant based on the impact criteria presented in section 3.12.3.

Table 7-53 and figure 7-50 summarize the nitrogen dioxide (NO₂) analysis results, including the background concentration, project impact at the receptor with the highest concentration, and the total concentration. Annual average NO₂ concentrations would be well below the National Ambient Air Quality Standards (NAAQS) of 53 parts per billion (ppb).

The maximum predicted 1-hour NO₂ concentration at the Springfield site would be equal to the 100 ppb NAAQS. This occurs because the closest and most representative monitoring site to the Springfield site has a NO₂ background concentration that is high relative to other monitors in the region. The maximum concentration occurs along the fence line at the northern portion of the Springfield site. Concentrations in the surrounding neighborhoods would be much lower than at the fence line and below the NAAQS. The reasonableness of the background concentration used for the Springfield site (City of Alexandria maintenance building) would also require further evaluation; it may be affected by a localized emission source, such as the adjacent railroad and rail yard.

Table 7-54 and figure 7-51 summarize the PM_{2.5} analysis results, including the background concentration, project impact at the receptor with the highest concentration, and the total concentration. Annual average and 24-hour average PM_{2.5} concentrations would be below the NAAQS. Similar to the NO₂ results, the maximum concentration occurs along the northern fence line of the Springfield site.

Mobile Source Impacts

All signalized intersections would operate at LOS D or better after taking into account traffic mitigation measures except for Intersection #21, Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street, which would operate at LOS E in the AM peak hour and LOS F in the PM peak hour. Based on consideration of approach volumes and background concentrations (discussed in Appendix F), no exceedance of the carbon monoxide (CO) NAAQS is anticipated for this congested intersection under the Springfield Alternative, resulting in long-term, adverse, but less than significant impacts to air quality from mobile source emissions.

Temporary Construction Impacts

Table 7-55 summarizes the construction equipment and fugitive dust emissions for the Springfield site. The fugitive dust analysis was based on a construction site area of approximately 58 acres. Annual construction emissions would be below the General Conformity de minimis thresholds for all criteria pollutants. Overall direct, short-term, adverse impacts would occur during the construction period.

Construction at the Springfield site would incorporate the same construction air quality mitigation measures and BMPs discussed in section 3.11.3.2.

Figure 7-51: Springfield 24-hr PM_{2.5} Project Increment Results

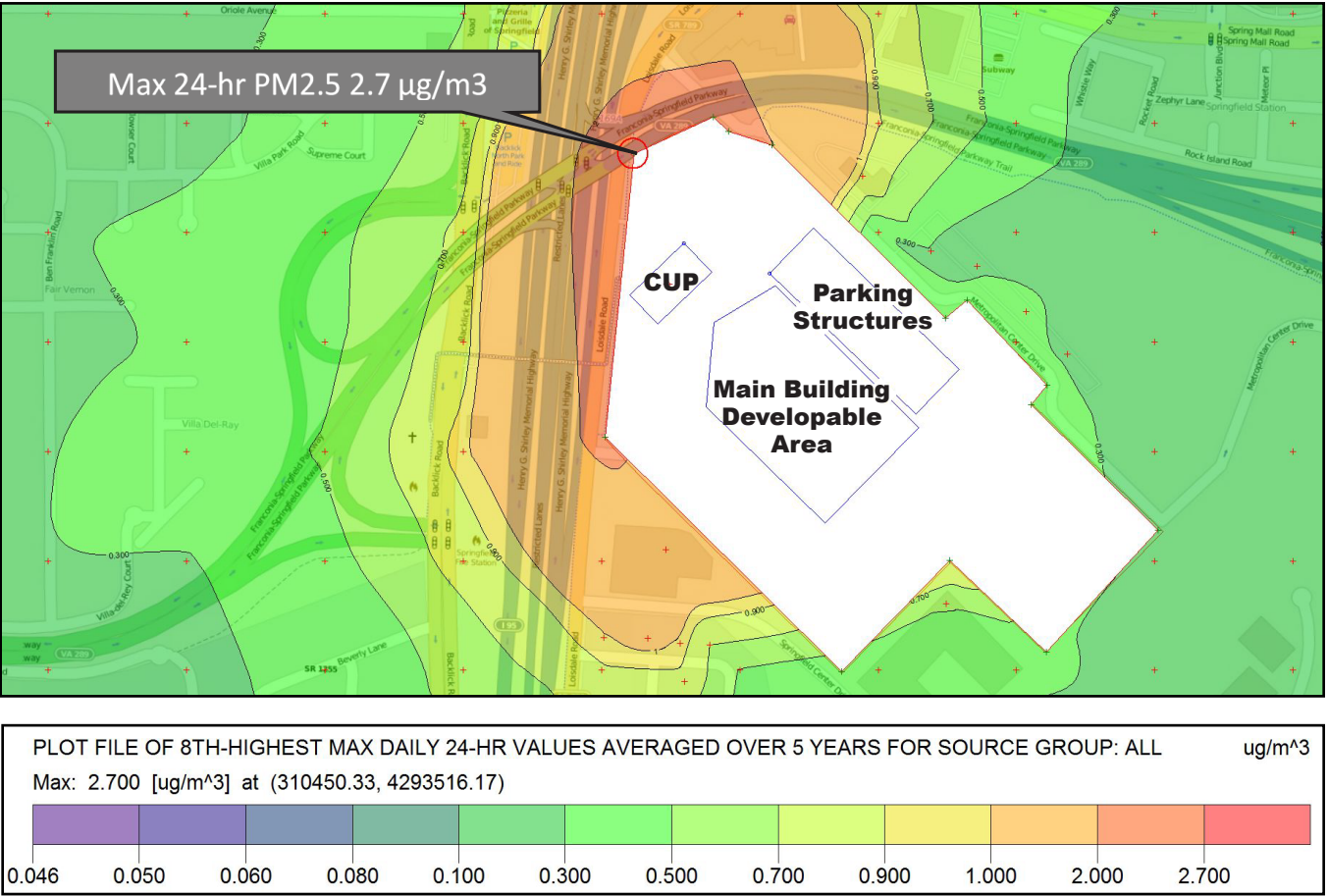


Table 7-54: Preliminary PM_{2.5} Analysis Results - Springfield Site

PM _{2.5} 24-hr (µg/m³)				PM _{2.5} Annual Average (µg/m³)			
Background	Max Project Increment	Total	NAAQS	Background	Max Project Increment	Total	NAAQS
20.3	2.7	23.0	35	8.4	0.8	9.2	12

µg/m³ = micrograms per cubic meter

Table 7-55: Construction Emissions - Springfield

	VOC (tons)	CO (tons)	NO _x (tons)	SO ₂ (tons)	PM ₁₀ (tons)	PM _{2.5} (tons)
Total Construction Equipment Emissions (from FASTC EIS)	16.1	261.0	213.8	4.6	11.5	11.0
Annual Average Construction Equipment Emissions (over four years)	4.0	65.2	53.4	1.2	2.9	2.8
Annual Average Fugitive Dust emissions	--	--	--	--	83.5	8.4
Total Construction Emissions per year	4.0	65.2	53.4	1.2	86.4	11.1
General Conformity de minimis threshold (per year)	50	100	100	100	100	100

SPRINGFIELD NOISE ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts.

SPRINGFIELD WATER SUPPLY ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD WASTEWATER COLLECTION & TREATMENT ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

7.2.11 Noise

NOISE ASSESSMENT OF SIGNIFICANCE

Impacts to noise would not be significant, as defined in section 3.12.3.

7.2.11.1 No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to noise because the continued operation of the site as a GSA warehouse complex would not alter the existing noise levels.

7.2.11.2 Springfield Alternative

The Springfield Alternative would result in similar construction-related equipment noise levels as well as operational noise levels as described for the Greenbelt site. Construction-related noise impacts would be caused by the operation of construction equipment, including materials delivery and staff vehicle transportation, as well as site preparation, on-site construction equipment operation, and the presence of construction workers. Therefore, under the Springfield Alternative, there would be direct, short-term, adverse impacts to nearby sensitive noise receptors from the construction of a consolidated FBI HQ campus.

The majority of the surrounding area has been previously developed. Primary noise generating sources in the area include I-95, the Franconia-Springfield Parkway, existing rail corridors, and commercial parks – all of which contribute to a considerable ambient noise level. Sensitive noise receptors adjacent to the site include residences to the south, existing hotels to the north, and the Northern Virginia Community College – Medical Campus. The closest receptors include residences approximately 200-feet south and the Northern Virginia Community College – Medical Campus, approximately 200 feet to the east. As a result, noise impacts from construction activities would be more pronounced than those presented for the Greenbelt site. However, because

extensive existing noise sources already exist, including I-95, the Franconia-Springfield Parkway, existing rail corridors, and the Springfield Town Center, impacts are not anticipated to dominate the landscape, but would result in a noticeable alteration to the noise environment. However, all construction activities would adhere to noise control regulations as established in the Fairfax County Code of Ordinances; therefore, construction activities would result in indirect, short term, adverse impacts to noise.

Over the long term, noise impacts as a result of the operation of a FBI HQ campus would be similar to those described for the Greenbelt site. These impacts would stem primarily from automobile traffic, employee and visitor parking, and from building operation and maintenance. There would also be generalized noise stemming from employee activities that would be expected to be similar to a large scale office complex. Existing noise sources in proximity to the site are prominent and are consistent with potential noise generated at the proposed FBI HQ. As such, although impacts would be more pronounced as a result of the close proximity of sensitive noise receptors, impacts would not be measurable because they would be similar to existing ambient noise levels. Similarly, although traffic is likely to increase from the presence of FBI HQ, impacts to noise are not expected to be substantial because of existing traffic and other noise sources in close proximity to the site.

Transportation Mitigations

Construction of the recommended transportation mitigations, as shown in figure 7-48, would result in direct, short-term, adverse impacts to noise from the operation of construction equipment within the transportation study area.

7.2.12 Infrastructure and Utilities

The following sections describe the environmental consequences for infrastructure and utilities under both the No-action Alternative at Springfield and the Springfield Alternative.

INFRASTRUCTURE AND UTILITIES ASSESSMENT OF SIGNIFICANCE

Impacts to infrastructure and utilities would not be significant, as defined in section 3.13.3.

7.2.12.1 Water Supply

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to water supply or service because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for water service.

Springfield Alternative

The Springfield Alternative would result in an increased water demand for the site. Fairfax Water reported that the existing water infrastructure has ample capacity to support the proposed development and there are no master-planned improvements needed to service this site. There are multiple transmission lines serving the immediate area as well as a major storage facility to the north and a water treatment facility to the south. By virtue of its location, the Springfield site has redundant water supply. Therefore, there would be no measurable impacts to the water supply at the Springfield site. (Fairfax Water 2015b).

7.2.12.2 Wastewater Collection and Treatment

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to wastewater collection and treatment because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for wastewater collection and treatment.

Springfield Alternative

The Springfield Alternative would result in an increased wastewater flow from the site. Fairfax County reported that there is sufficient hydraulic capacity in the wastewater collection system and the Long Branch pump station, as well as the wastewater treatment plant that would serve the site (Noman M. Cole Jr. Plant), to support the proposed development. The proposed development would connect the Fairfax County collection system at the same location as the existing development. Therefore, there would be no measurable impacts to wastewater collection and treatment as a result of the Springfield Alternative (Fairfax Water 2015b).

7.2.12.3 Electric Power

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to electric power because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for electricity.

Springfield Alternative

The consolidation of the FBI HQ at the Springfield site Springfield Alternative would result in direct impacts to electric power. The anticipated load requirement for the consolidated FBI HQ campus is between 20 and 35 megavolt amperes. Dominion representatives reported that a dedicated 34.5-kV power supply could be made available to the Springfield site to meet this load requirement, and that no on-site substation would be required. However, upgrades to existing conductors and transformers serving the site would be necessary

to accommodate the anticipated increased load. The existing electric service does not provide for the desired level of redundancy associated with the proposed development. A second, independent feeder could be extended to the site from the Hayfield Substation. This would require approximately 1.5 miles of new distribution lines installed within existing rights-of-way and/or easements. Dominion reported that the Hayfield Substation has adequate capacity to accommodate the anticipated demands associated with the proposed consolidation and that there are no planned upgrades at this substation (Dominion 2015d). Because of the required extension for redundant power supply and upgrades necessary to existing infrastructure, direct, short-term, adverse impacts are to be expected. However, no long-term, adverse impacts are anticipated under the Springfield Alternative.

7.2.12.4 Natural Gas

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to natural gas because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for natural gas service.

Springfield Alternative

Washington Gas representatives stated that it would be necessary to provide natural gas service to the Springfield site directly from a transmission pressure line to support the anticipated load associated with the proposed development. There is a transmission pressure gas main located along Loisdale Road, and the existing natural gas distribution system is connected to this main. Because transmission pressure gas service is currently available to the site, no measurable impacts would occur under the Springfield Alternative (Washington Gas 2015).

7.2.12.5 Telecommunications

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to telecommunications because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for telecommunications.

Springfield Alternative

Under the Springfield Alternative, there would be no measurable impacts to telecommunications. Providing telecommunications service to the Springfield site would not adversely impact current or future customers of the region. Development of the site would require coordinating the telecommunications needs of the proposed development with the appropriate providers, but no long-term, adverse impacts to availability or quality of telecommunications services to existing customers is expected because of the infrastructure already in place.

7.2.12.6 Stormwater Management

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to stormwater management because the continued operation of the site as a GSA warehouse complex would not alter the existing stormwater management or infrastructure.

Springfield Alternative

Development of the site would require compliance with the Public Facilities Manual, which is the technical guidance developed to implement the requirements of the Code of the County of Fairfax, Virginia (County Code). The site is currently nearly all impervious surface (i.e., roof tops, parking lots, and roadways). It is anticipated that low-impact development measures and on-site stormwater BMPs would be incorporated into the design. This would curtail, and potentially reduce, stormwater runoff from the site so as to not adversely affect downstream properties or facilities. Therefore, direct, long-term, beneficial impacts are expected under the Springfield Alternative as a result of the incorporation of on-site stormwater BMPs.

SPRINGFIELD ELECTRIC POWER ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts.
- Springfield Alternative: Direct, short-term, adverse impacts.

SPRINGFIELD NATURAL GAS ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts.
- Springfield Alternative: No measurable impacts.

SPRINGFIELD TELECOMMUNICATIONS ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts.
- Springfield Alternative: No measurable impacts.

SPRINGFIELD STORMWATER MANAGEMENT ENVIRONMENTAL CONSEQUENCES SUMMARY

- No-action Alternative: No measurable impacts.
- Springfield Alternative: Direct, long-term, beneficial impacts.

7.2.13 Summary of Impacts

Table 7-56 presents a summary of the impacts associated with the Springfield Alternative to the resource topics analyzed in this EIS, including the No-action Alternative at Springfield.

Table 7-56: Springfield Summary of Impacts

Resource Area	Impact Description	
Earth Resources		
Geology and Topography	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts to topography.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts to geology.
Soils	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts.
Water Resources		
Surface Water	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Hydrology	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.
Groundwater	N	Under the No-action Alternative, there would be no new measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.
Wetlands and Floodplains	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Biological Resources		

N	No Measurable Impact	ADV	Adverse Impact	ADV	Major Adverse (Significant) Impact	BEN	Beneficial Impact
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Table 7-56: Springfield Summary of Impacts

Resource Area	Impact Description	
Vegetation	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts.
Aquatic Species	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Terrestrial Species	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, short- and long-term, beneficial impacts.
	ADV	Under the Springfield Alternative, there would be direct, short- and long-term, adverse impacts.
Special Status Species	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Regional Land Use, Planning Studies, and Zoning		
Regional Land Use, Planning Studies, and Zoning	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts to zoning.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts to land use and land use with respect to planning studies.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts to land use with respect to planning studies.
Visual Resources		
Visual Resources	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts.
Cultural Resources		
Archaeological	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Historic Resources	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Socioeconomics		

N	No Measurable Impact	ADV	Adverse Impact	ADV	Major Adverse (Significant) Impact	BEN	Beneficial Impact
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Resource Area	Impact Description	
Population and Housing	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts to population or housing in the Washington, D.C. MSA. There is insufficient information to assess impacts to population or housing in Fairfax County..
Employment and Income	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be indirect, short- and long-term, beneficial impacts as a result of construction-related spending.
Taxes	N	Under the No-action Alternative, there would be no measurable impacts to taxes.
	BEN	Under the Springfield Alternative, there would be indirect, short- and long-term beneficial impacts to tax revenues.
	N	Under the Springfield Alternative, there would be no measurable impacts to property tax revenues.
School and Community Services	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there is insufficient information available to determine impacts to community services. No measurable short-term impacts to schools. Insufficient information available to determine long-term impacts to schools.
Recreation and Other Community Facilities	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there is insufficient information available to determine impacts.
Environmental Justice	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no long-term adverse impacts to minority or low-income communities.
Protection of Children	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, no mitigation of disproportionate and adverse impacts to children is required under EO 13045
Public Health and Safety/Hazardous Materials		
Public Health and Safety	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be indirect, short-term, adverse impacts.
Hazardous Materials	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.
Transportation		

Table 7-56: Springfield Summary of Impacts

Resource Area	Impact Description	
Pedestrian Network	BEN	Under the No-build Condition, there would be direct, long-term, beneficial impacts.
	BEN	Under the Build Condition, there would be direct, long-term, beneficial impacts.
Bicycle Network	BEN	Under the No-build Condition, there would be direct, long-term, beneficial impacts.
	N	Under the Build Condition, there would be no measurable impacts.
Public Transit	N	Under the No-build Condition, there would be no measurable impacts to public transit.
	N	Under the Build Condition, there would be no measurable impacts to public transit capacity.
	ADV	Under the Build Condition, there would be direct, short- and long-term, adverse impacts to bus operations.
Parking	BEN	Under the No-build Condition, there would be direct, long-term, beneficial impacts.
	N	Under the Build Condition, there would be no measurable impacts.
Truck Access	BEN	Under the No-build Condition, there would be direct, long-term, beneficial impacts.
	N	Under the Build Condition, there would be no measurable impacts.
Traffic Analysis	ADV	Under the No-build Condition, there would be direct, long-term, adverse impacts.
	ADV	Under the Build Condition, there would be direct, long-term, adverse impacts to isolated intersections.
	ADV	Under the Build Condition, there would be direct, long-term, major adverse corridor-level traffic impacts.
	ADV	Under the Build Condition, there would be direct, short-term, adverse impacts.
Greenhouse Gas Emissions and Air Quality		
Global Climate Change/ Greenhouse Gases	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts.
Air Quality	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short- and long-term, adverse impacts.
Noise		

N	No Measurable Impact	ADV	Adverse Impact	ADV	Major Adverse (Significant) Impact	BEN	Beneficial Impact
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Resource Area	Impact Description	
Noise	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts.
Infrastructure and Utilities		
Water Supply	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Wastewater Collection and Treatment	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Electric Power	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts.
Natural Gas	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Telecommunications	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Stormwater Management	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.